# (Capturing Intention)

Documentation,
analysis and notation
research based
on the work
of Emio Greco | PC

Amsterdamse Hogeschool
voor de Kunsten

eg | pc

Emio Greco | PC and AHK/Lectoraat, Amsterdam, October 2007
*Dedicated to the knowledge that is dance*

# Table of Contents


Bodies / Traces / Sources / Theory

Scott deLahunta
5 **Introduction**
**The body has to be clear and the words have to be right**

Franz Anton Cramer
11 **Knowledge, Archive, Dance**

Maaike Bleeker
16 **Questions of movement and meaning**

---

Structure / Interface / Analysis / Practice

Scott deLahunta
20 **The moment to question...**
**Double Skin/Double Mind?**

Maite Bermúdez
22 **Capturing Emio Greco | PC**

Frédéric Bevilacqua
26 **Momentary notes on capturing gestures**

Chris Ziegler
34 **Electronic memory design**
**From archiving to rehearsal software**

Eliane Mirzabekiantz
42 **Notation-in-movement**

Marion Bastien
48 **Notation-in-progress**

---

Experiment / Image / Meaning / Science

Bertha Bermúdez
58 **Butoh-Kaden: a notation system for Butoh-Fu**

Corinne Jola
62 **Movement Intention**
**Dialectic of internal and external movements**

---

Research / Archive / Critique / Academy

Scott deLahunta
70 **Sharing questions of movement**

Susan Melrose
74 **Not yet, and already no longer. Loitering with intent between the expert practitioner at work, and the archive**

Marijke Hoogenboom
80 **Conditions for research**

---

84 **Credits**

86 **Colophon**

**Scott deLahunta** works from his base in Amsterdam as a researcher, writer, consultant and organiser on a wide range of international projects bringing performing arts into conjunction with other disciplines and practices. He is an Associate Research Fellow at Dartington College of Arts and Research Fellow with the Art Theory and Research and Art Practice and Development Research Groups, Amsterdam School of the Arts. He lectures on the Master in Choreography/New Media at the Amsterdam School of the Arts and serves on the editorial boards of *Performance Research, Dance Theatre Journal* and the *International Journal of Performance and Digital Media*.

**Introduction**

# The body has to be clear and the words have to be right

From the moment they locked themselves away in a studio for two months in 1995 with 'the ambition to come out of that space with a proposal', the entanglement of body and words has been a constant thread running through the artistic collaboration of Emio Greco and Pieter C. Scholten. The proposal they came out with was named the "language of the flesh", and it gave rise to a basic structure that consisted of seven directions they later linked with the *Seven Necessities*, the manifesto in which they described the "credo about their artistic choices".[1] Language, structures, flesh and the dialectics inherent in their own unique collaboration quickly gave rise to another body.[2] A growing body of work, a collection of choreographies, materialized: first a trilogy *Fra Cervello e Movimento* (1996-1999) then the still ongoing *Double Points* series (1998-). In the middle of this: an invitation to conduct a coaching project for the Internationale Tanzwochen Wien for which they created *Double Skin/Double Mind* (*DS/DM*). Avoiding the ideas of technique and training per se, Greco and Scholten used this as an opportunity to analyze and explore their creation process, as is described in 'The moment to question... Double Skin/Double Mind'.

And if the entanglement of body and words is one constant thread, the other must be that, for Greco and Scholten, the dual paths of creation and research are continuously feeding each other in an unusually tight recursive process. And impressively, whether by necessity or design, they have refused to allow this creation/research process to remain theirs alone. For while they continued taking on new creative challenges, they and their organization, Emio Greco | PC (EG | PC), expanded their research initiatives beyond the simultaneously evolving and constant *DS/DM* workshop, to include the *Dance & Discourse* Salons, inaugurated in January 2003, and the *Notation Research Project* – as first announced by Bertha Bermúdez in the context of the Salon held on 5 October 2004, a meeting dedicated to the discussion of *repertoire* and *archive*.

This book, entitled *Capturing Intention*, is one of the latest outcomes to emerge from the *Notation Research Project*. The title explicitly points toward the basic question that is driving the research: what notation system can capture inner intention as well as the outer shape of gestures and phrases? The content of this book contains the traces of a number of encounters and working processes, all circling around this basic question (if not circling then running in parallel with overlaps), that began in preparatory stages in 2004. This was followed by a *first phase* in 2005 that included a *DS/DM* documentary film project (see

accompanying DVD-ROM) and a period as *artists-in-residence* exploring the concept of *transfer* within the educational context of the Theatre School, Amsterdam continuing through to 2006.[3] The core material of this book and the other DVD-ROM is a result of the *second phase* of research that began in April 2006 under the heading: *Dance and Media: A Multi-disciplinary Research Project on New Ways of Dance Notation/ Documentation and Re-creation*.[4]

It is the *multi-disciplinary research* approach that defines this second phase of the research project: its energies and directions (sometimes convergent and sometimes not); its multiple foci and points of departure; its overlapping but separate fields of terminologies and expertise. For the aim of this second phase was to bring specific perspectives from different disciplines to bear on various properties of dance and movement in relation to the *Notation Research Project*. And to do this as collaborative research vis-à-vis a series of events and meetings leading to the development of prototype tools and approaches (See Time Line).

As Marijke Hoogenboom describes in her essay at the close of the book: "the interdisciplinary project team, which has been constituted for the purpose of taking up this second phase of research, takes as its departure point the assumption that the complex nature of dance cannot be adequately represented with a single technology".[5] In other words (and there are many instances throughout this book of the same ideas being described in different terms), we, the research team, decided that the basic question, "what notation system can capture inner intention as well as the outer shape of gestures and phrases?", could be best answered through organised encounters between different specialist perspectives.

In this book, you are invited to enter into these encounters with individuals who are specialists in dance notation systems (Marion Bastien, Eliane Mirzabekiantz and Bertha Bermúdez via her recent studies), cinematography and film making (Maite Bermúdez), computer based motion tracking and gesture analysis (Frédéric Bevilacqua), interactive design to enhance understanding of dance (Chris Ziegler) and the scientific study of the brain's perception of movement (Corinne Jola). Additionally, we have included the perspective of other individuals working in the more academic areas of culture studies and philosophy (Maaike Bleeker, Susan Melrose, Franz Anton Cramer) that were not directly involved in the second phase encounters. However, we do intend to involve these areas more in the *third phase* of this research and their contributions here help to broaden the space for thinking about the implications of the *Notation Research Project*.

**Notation Research-in-Progress**

On 5 April 2005, Bertha Bermúdez and I met in De Balie café in Amsterdam for her to describe the *Notation Research Project* to me. My short summation of our talk included the following item in a longer list of seven points:

> "Point #5 Normally passing these dances onto others is done through instruction with the body and words. To do this *the body has to be clear and the words have to be right*."

Bertha Bermúdez, at that time starting her study of existing notation systems, was about to meet with Benesh specialist Eliane Mirzabekiantz in Paris and was also planning to introduce the idea of making a documentary of the *DS/DM* workshop to the filmmaker Maite Bermúdez. Further elaboration on these encounters can be found in the essays of Eliane Mirzabekiantz and Maite Bermúdez.

The planning and making of the *DS/DM* documentary provided a major impetus to the *Notation Research Project*. Here was a core set of material where this entanglement of language, structures and flesh might be analyzed to a useful purpose not only for Greco and Scholten, who at the time felt the need to "understand the logic of the workshop and its structure better", but also to give the second phase of the project a concrete 'boundary object' to work with by providing a set of nameable components and describable elements.[6] For the interdisciplinary team this material was to prove invaluable, and you will find components and elements such as *Breathing, Jumping, Expanding* and *Reducing* appearing throughout this book and accompanying DVD-ROMs. It is essential to understand that these principle components (there are a total of seven) are always part of the preparation for creating and performing. Through doing *DS/DM*, the intention behind/inside of each movement is brought to a high degree of concentration and the conditions for the appearance of new making ideas are established. It is to the exploring and exploiting of *DS/DM*, with the aim to 'capture' this concentrated intention, that the rest of the second phase of research has been devoted.

The encounters for the second phase began officially in Amsterdam with a Salon held in April 2006 in the context of the *Anatomical Theatre Revisited* symposium organized by Maaike Bleeker.[7] Following this, all members of the interdisciplinary team met for the first time at a two-day symposium in early July 2006 during Cinedans in Amsterdam; here they were invited to present their current research and to start to exchange approaches. The working meetings and events that took place after this symposium can be traced along the Time Line. As mentioned earlier you are invited, here in this publication, to enter into these through reading the individual essays and through viewing the accompanying DVD-ROMs.

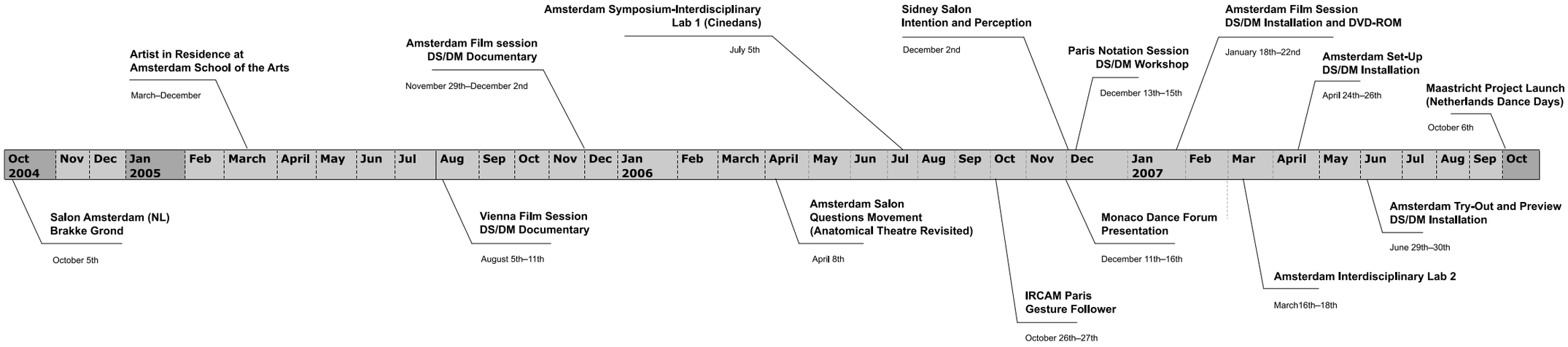
However, we also leave things open-ended as a manifestation of the in-progress nature of the current research. For the basic question about notating intention that we started from has been our catalyst, our ingredient stimulating a wealth of ideas, rich insights and new representations as you see contained in this publication. We have not thus far discovered *the* system, method of documentation, analysis or notation that gives any one answer to our question, but one might reflect that arguably this was not the point to begin with. In Scholten's words, "It is in the attempt to do this process and to speak about it... it is not to capture intention, but to try". At the same time, a discovery in its purest form is not known before it appears; and we may yet come across something of singular importance. We can only establish the best conditions for this to happen. And perhaps to try harder following Greco's proposal: "I think the responsibility is more with us, not so much the various systems being used. (...) And we have to be clearer, how can they capture something if we don't really describe that moment".

**The Wider Context**

By attempting to discover adequate notations and descriptions for new movement expression, in addition to the context of the creation/research work of EG | PC, the notation project enters into two other contexts, historical and contemporary. The aspiration to notate movement seems a basic human and cultural urge as evidenced by constant endeavor through several centuries. This continuous invention is revealed in part by a list of approximately eighty documented dance and movement notation systems, in which movement analysis is at least implicit, that dates back to the mid-1600s and includes the Laban and Benesh systems invented in the early half of the 20th century.[8] Sciences and technologies emerging in the 1800s brought new instruments and methods of analysis to bear on the topic of movement research and in the 1900s the anthropological study of movement, and systems invented to further that study, sought to understand human gesture within its social and cultural context.[9] The science of computer graphics picked up and contributed to these threads of movement research through the development of digital technology not only for furthering scientific study (e.g. in the field of biomechanics), but also for the creation of animated characters to populate new media spaces from the cinema to 3D virtual environments.[10]

This extreme *précis* of the past few hundred years lends support to an initiative like the *Notation Research Project* that aims to bring different disciplines from arts, technology and sciences together not only to pursue the specific research goals of the project, but to further understanding of human movement in all its creative complexity. But this understanding should not come at a cost to the arts – the main research agenda here is an artistic one and it should remain so. But for this it's important to seek a clarification of the relation of dance to other 'knowledge domains'.[11] Dance is obviously a site of knowledge based on the existence of a community that has agreed to learn and advance this largely through the production of art-making processes and performances.[12] But dance's status as a 'domain' is largely evaluated on the strength of its contribution as 'art' to the public sphere. This evaluation is not always useful for understanding the full nature of what dancing and dance making contains, and here is where exchanges with other non-art disciplines and practices can be productive. There are two essays in this book that explore this idea: one is the essay by Corinne Jola. From her perspective as a cognitive neuroscientist, Jola offers a valuable condensed glance at a very different set of descriptions of movement intention grounded in the culture of science with an aim to bring these into a generative relationship to the driving artistic aims of the project. The other is a re-published essay titled 'Sharing Questions of Movement' in which I sketch out some possible territory of productive cross-domain research involving dance and choreography.

Notation Research Project
**Time Line**




There are a handful of other contemporary choreographers also actively engaged in these issues related to knowledge production and the implications for arts creation/research, among them Wayne McGregor, Siobhan Davies and William Forsythe.[13] As with EG | PC, they do this not only through making dances for an audience, events conforming to the conventions of the field, but through innovating new and 'unconventional' types of traces and artefacts of the dance creation process. Through exploring fresh approaches to documenting, analyzing and an/notating their creative work, they deepen their own understanding while simultaneously stimulating the attention of others who may utilize these traces as resources in their own research. All are working with interdisciplinary teams from both art and non-art disciplines to investigate these possibilities.

**The future: archive and re-creation**

The *Notation Research Project* has had the benefit of support from some key organisations and the concerted and concentrated efforts of all involved. And the aim is to continue with the next phase developed in part from the second phase results and to include *archival* and *re-creation* work. The plan is to do this together with building a new consortium of institutional partners and individual researchers based in the Netherlands. In the meantime, for EG | PC the *Dance & Discourse* Salons have now been integrated into a new creative and education unit inside the organization, the *Accademia Mobile*, which is now in operation. Additionally, there are ambitions to establish a major international choreographic research centre in Amsterdam where a wide range of different disciplines can continue to interact.

1 Quotes from email communication with Pieter C. Scholten 14.07.07.
2 See: 'The wake-up calls of Emio Greco and Pieter C. Scholten'. Interview by Gabriel Smeets on the making of the trilogy *Fra Cervello e Movimento – Bianco, Rosso* and *Extra Dry* (Amsterdam 2004). Available www.emiogrecopc.nl (accessed 16.07.07)
3 The Theatre School residency spawned two additional publications: *Company in the School*. Eds. Jeroen Fabius and Ingrid van Schijndel. Research group Art Practice and Development & Emio Greco | PC. 2007; *Transfer*. Eds. Marijke Hoogenboom, Pol Eggermont and Nienke Rooijakkers. Amsterdam School of the Arts. 2007.
4 The term 'media' as the plural of medium is used here to refer broadly to a variety of methods and technologies for recording, storing, representing and transmitting; in this way it makes reference to both digital and analog formats, old and new technologies.
5 See in this book: Marijke Hoogenboom. 'Conditions for Research'. p. 80.
6 The notion of the 'boundary object' can be found in anthropological and other areas understood as something that can foster cooperation and communication among the diverse members of heterogeneous working groups.
7 See in this book: Maaike Bleeker. 'Questions of Movement and Meaning' (framing statement for symposium). p. 16.
8 See: Anne Hutchinson Guest. *Choreo-Graphics: A Comparison of Dance Notation Systems from the Fifteenth Century to the Present*. Gordon and Breach Science Publishers S. A., 1989.
9 For a look at early development in movement sciences see: Scott deLahunta. 'The Human Walking Apparatus: a technological episteme'. in: *Interagir: avec les technologies numériques: Nouvelles de Danse*. No. 52. 2004. pp. 36-49.
10 For a similar thesis see page 9 of Laurence Louppe's 'Imperfections in Paper'. in Louppe, ed. *Traces of Dance: Drawings and Notations of Choreographers*. Paris: Editions Dis Voir, 1994. pp. 11-33.
11 The concept of 'knowledge domain' is not commonly used in reference to the arts; its use here points towards future discussions.
12 There is a useful concept in the social sciences referred to as 'communities of practice' in which the concept of knowledge is disassembled into its function in the creation and sustaining of the practice-based relations of a particular community or field. One of the foremost theorists of this concept is Etienne Wenger www.ewenger.com (accessed 16.07.07).
13 For some description of these other projects and the concept of the choreographic resource see: Scott deLahunta and Norah Zuniga Shaw. 'Constructing Memory: Creation of the Choreographic Resource'. in: *Digital Resources: Performance Research*. Eds. Ric Allsopp and Scott deLahunta. Vol 11, No 4. pp. 53-62.

**Franz Anton Cramer** trained and worked as a classical dancer and mime player before studying Romance languages and literature. He received his PhD degree in 1998. Besides being associated researcher at the Tanzarchiv Leipzig e. V. and the Centre national de la danse in Pantin near Paris, he is member of the teaching staff at Berlin's newly founded Inter-University Dance Education Department (HÜZ). In Spring 2007 he was elected programme director at the Collège international de philosophie in Paris.

# Knowledge, Archive, Dance[1]

In the following essay, writer and researcher **Franz Anton Cramer** pursues a question that is of key concern to the *Notation Research Project*: which aspects and phenomenological qualities of dance should be invested in their preservation, documentation and transmission? He proposes that this has as much to do with the 'idea' we have of dance as with its pure appearance. Cramer's essay engages with several critical issues on the theme of archive further explored by Susan Melrose later in this book.

"…nothing is lost in time; a footprint in the sand is enough to conjure up the image of a body in the shadows whose weight left its trace there," (Lannes 1938, p.192) wrote French author, occasional critic and admirer of Serge Lifar, Roger Lannes, in 1938. The poetry of dance lies in its transitory everlastingness, in the state in which the dancer "from one second to the next … forms another body from his body … By so doing he destroys what he was in order to attain what he is going to be." (Lannes 1938, p. 193)

Lannes identifies all the obstacles to dealing with a phenomenon which is indisputable but which nonetheless cannot be grasped, either in the sense of comprehended or physically captured: movement in the form of dance. Dance is a constantly unstable state; it is borderline rational insofar as it always eludes the methods and instruments of cognition with which we try to seize it and make it understandable.

Dance simply does not constitute an *object*; it is a process which "…evades all attempts to define it to such an extent that only the demonstrable peripheral phenomena of a figure remain" (Plessner 1974, p. 128) – i.e. pictures, sculptures, photographs. What cannot last, however, is dance's eternal state of becoming, the "emphasis in the now" (Plessner 1974, p.132) of sheer possibility.

We therefore define dance by a characteristic which by its very nature is none, namely the non-existence of dance, the fact that it leaves no trace, its eternal existence in the present.

**Documents, Artefacts**

For this reason, it is often claimed that dance says more than a thousand words. One simply has to accept that the unique moment of fullness can never survive in the permanence of a document. Of course, this raises the question of which kind of document might be implied. At the same time, a much more fundamental question is raised, namely whether art can ever be translated into another form, another medium; whether, indeed, it ever exists beyond the given structures of communication in which it takes place with its (alleged) purely experiential nature.

In his essay entitled 'Reversals. Observations on the difference between dance and discourse', Peter Stamer summarises this characteristic co-dependence thus:

> "This extra something of art ... is the obscure remainder left over when the spectator tries to put what he has experienced into words. … Art, so says (this form of) aesthetic, can only be art if it keeps its enigma inaccessible to language. It is this enigma that must deny its appearance on the scene of visibility because it can only maintain its mysterious character *off-stage*, invisible to discourse, and hide it in the experiential moment of the body. (Stamer 2004, p. 15)"

Thus, artistic experience actually needs this aspect of indescribability in order to be able to justify itself and define itself as the counterpart to speech, the extra sense, the surplus of meaning. This amounts to a role reversal: "Discourse forms the epistemic background before which art can appear as something more: art is not a mystery, but the effect of discourse's practice of mystifying." (Stamer 2004, p.15)

Seen from this perspective, however, the difference between the phenomenon and the traces it leaves or the document in which it is described would only be an accident of theory, a misunderstanding in observation. It suggests that the practice of dance has won out over discourse, keeping its 'specific knowledge', its 'knowledge in movement' at its core, as its essence. And that it is all the same to dance what others do with it.

The question of the translatability or the possibility of transferring the danced artwork, i.e. the subject of choreography, to another medium – the construction of dance memory – cannot be answered in terms of pure experience versus mere preservation. Dance is more than just the dancer and the dancing. And the remains of dance are more than just documents.

Each new generation of dance theorists must reconsider to what extent dance can be objectified and by which means. In 1931, one of the most important dance-theoretical institutions of the modern age was founded on this basis of observation, namely the International Dance Archive in Paris (A.I.D.) (cf. Baxmann et al. [eds.] 2006).

The A.I.D. propagated new formulae for the generation of knowledge about dance, underscoring the role of artistic appropriation over a more general approach. All parameters which had hitherto been regarded independently, such as choreographic knowledge, technical skills, the more or less untrammelled expression of subjectivity, gestural narrativity … all these parameters are subjected to close examination. The A.I.D.'s mission was to rethink the very concept of dance and the methods by which we attempt to objectify it, without thereby sacrificing the individual aspect. A new method of making dance understandable was sought which took into account dance's dependence on context, differentiated between the describable elements and the elusive, and looked into this double phenomenon (cf. Cramer 2006). At the core of this lies the goal of a 'clear and definitive method' of examining dance, as the scientific director of the institution, Pierre Tugal, had postulated.

**Archives and/as sources**

The clear distinction between choreographic practice and archival acquisition is based on separation and hierarchy: dance has the first show, the archive has the second; dance gets the final applause, the archive and its documents then sweep the stage and clear the boards for dance's next performance. These clearly defined roles perhaps no longer apply today.

For is the archive conceivable at all beyond the artefacts with which it is stocked? And what are these artefacts? 'Regular' items such as written documents and biographical testimonies can of course be regarded as artefacts in the sense that they have not been configured in the 'natural' or 'organic' way that they seem to present themselves in the collection. There is therefore a performative (a self-producing, a structurally self-processing) element inherent in the object.

The nature and self-image of performance as a process of realising one's own structures and existential conditions distinguishes one part of the archive. On the other hand, the archive also goes by the principle that the immaterial (i.e. knowledge) can be derived and stated from material evidence. The idea is that the archive is a means of knowledge generation as it (perhaps) holds the traces of a moment of pre-knowledge, thus making it into a fact, something which has already occurred, as well as turning it into a source, an origin, the starting point for a reality. The radical now-ness of the performance always comes up, in the archival expeditions of the intellect, reflection, and contemplation, against its past-ness, its state of having always been in the past.

Contemporary performance art is practically obsessed with both the supposed fleeting nature of dance (of performance) and the supposed ossification of the archive. This heightened interest in the live presentation *and* its dependence on the remains of this living expression seem to me to come closer to answering the question of what one could call contemporariness. For there is no dance without memory, just as there is no memory without the specific media and means of its preservation. Performance needs its specific context. The one is reliant on the other: the eternal past of the archive and the constant present of dance, in which future memory must first be produced. The memory thus produced, however, can only materialise and become context when it is placed in relation to that which has been (the performance, the live act) in a current frame of reference. Only in this way can the performance become 'something': the object of discourse, interest, research … Rather than the mere reversal of which Peter Stamer speaks, we are perhaps dealing with something more like a complementary relationship: the present can only be because it holds its past within it and takes its own permanence as a document into consideration.

**Taxonomies**

The preservation and documentation of dance content needs ask only few other questions today. Which sources should be used? Which facts can be preserved and how? With the advent of the internet, nearly all the major archive collections in the field of dance have become broadly accessible. Information is retrieved by entering key words – authors, works, venues, subjects, i.e. all the items which give dance a specific context. Thus one enters into a realm of orders, taxonomies, indexing and arborisation. The domain of source information exists just as much for dance as it does for other disciplines. There are data carriers and search panels, user interfaces and encoded archival descriptions, on-line catalogues and networks, information architectures and media collections, compatibility software and individual configuring; in other words, all the technology of knowledge. The archive decides which source is relevant, where it belongs, who should have access to it and in which form.

From the information interface and its structured framework of description, indexing and ordering, one sooner or later arrives at the individual document and the silent knowledge which is to be somehow elicited from it. The organising of any given group of documents by international standards – I mention this just to give an idea of the everyday work of the archive – often functions so smoothly that each individual case, the reality of a document and its origins, can be neatly reproduced – so that standardisation does ultimately take place on a life-size scale.

In order to therefore extract the 'complete danced fact' from the mere situation of its appearance, to make it independent of it, the archive, with its objectifying process, takes on a kind of interpretive function, mediating between the creation of a source and its later use. For whatever shape a document takes, it never contains the dance itself, just some or other traces which always remain subjective. Both the subjectivity of each dance and our subjectivity in dealing with its traces must be reflected in the document, and even more so *as* a document.

This is a question of how object and objectivity are constituted and how the one necessitates the other. Is the object always an object, or do the context (the immaterial nature of knowledge, of ideas, of the Maussian 'fait social total'), perception, categorisation and the use of this object play a part in shaping it, making it not at all 'objective' but positively artificial?

The contemporary archive often pursues the question of the category of the objective further than it can itself document, in the name of subjectivised physical phenomena and the role they play in the generation of knowledge, its categories, organisation and transmission.

In 1921 Jean d'Udine wrote in his book *What is Dance?* about the use of an external, objectifying analysis of movement for dance:

> "Fortunately knowledge of this kind is not essential for the dancer; his artistic experience and his propensity for methodical observation allow him to attain enough mechanical knowledge to arrange his musical sense, his graphic power of invention, his muscular energy and his body mass in the right relation to one another in the best possible conditions." (Udine 1921, p. 87 ff.)

He then proceeds to expand on, or rather encapsulate, this definition of a physically given and artisti-

cally founded well of knowledge – in other words, the *complexity* of danced phenomena thus: "Moreover, wherever the human spirit intervenes, whether by spontaneous decision, reflex action or even the play of the subconscious, there can be no strictly scientific phenomena." (Udine 1921, p. 88) There is no use in the mere knowledge of a *balistique humaine* (Udine 1921, p. 89), i.e. the mechanical analysis of movement.

Thus, the question of which aspects and which phenomenological qualities of dance to invest in their preservation, documentation and transmission, and on which basis, has as much to do with the idea that we have of dance, i.e. with the definition that we or a certain period give dance, as with its pure appearance.

If it is true that the archiving of dance takes place in particularly close reciprocity with and a kind of complementary relationship to the artistic activity of dance, then the specific form which a certain speech, a certain instance of perceiving, a certain form of preserving demands could perhaps be best defined by how we deal with the traces of dance and the kind of knowledge which constantly releases itself into the open; just as Roger Lannes formulated in the passage quoted above: "From one second to the next, the dancer draws another body from his body."

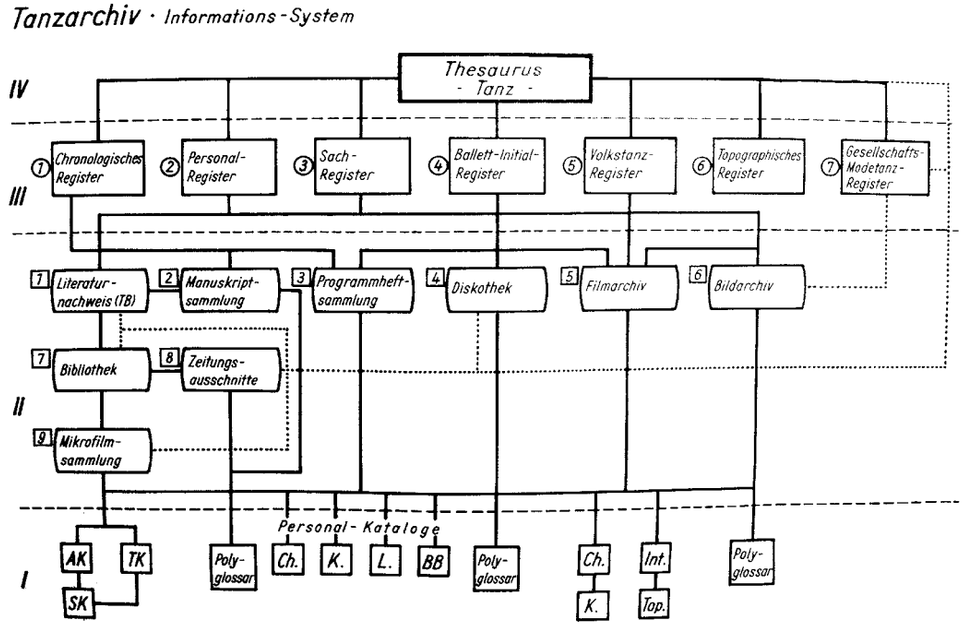
Translation German to English:
Charlotte Kreutzmüller

References:


- Baxmann, Inge, Claire Rousier, Patrizia Veroli (eds.): *Les Archives internationales de la danse 1931 à 1952*. Pantin, Centre national de la danse 2006.
- Cramer, Franz Anton (2006): 'Dire la danse. Les conférences-démonstrations et le discours sur la technique et le mouvement' in: Inge Baxmann, Claire Rousier, Patrizia Veroli (eds.), *Les Archives internationales de la danse 1931 à 1952*. Pantin, Centre national de la danse 2006, pp. 86-108.
- Lannes, Roger (1938): 'Poésie de la Danse' in *Revue Musicale*. No. 182, March 1938, pp. 191-200.
- Plessner, Hellmuth (1974): *Die Stufen des Organischen und der Mensch*. Berlin, de Gruyter (1928).
- Stamer, Peter (2004): 'Umkehrungen. Anmerkungen zur Differenz von Tanz und Diskurs', in *Tanzjournal*. No. 2/2004, pp. 13-16.
- d'Udine, Jean (1921): *Qu'est-ce que la danse?* Paris, Laurens.


Endnote:

1 Parts of this article were presented at a conference entitled *Verlorenes Wissen. Tanz und Archiv* on May 6, 2006 at PACT Zollverein, Essen (Germany), as part of the lecture series: *Archiv – Bewahrung – Wissen. Das Phänomen und die Spur*, March to November 2006.




A 'Systematik' for a dance archive, devised by Kurt Petermann, 1960s

**Maaike Bleeker** is a professor of Theatre Studies at Utrecht University. In 2004, she was awarded a VENI-research grant of the Netherlands Organisation for Scientific Research (NWO) for a project titled *See Me, Feel Me, Think Me: The Body of Semiotics*. She lectured at the Department of Theatre Studies of the University of Amsterdam, The Piet Zwart Post-Graduate program in Fine Arts, Media-GN, The School for New Dance Development, and the post graduate program Arts Performance Theatricality, Antwerp. She worked for more than ten years as a dramaturge for various theatre directors, choreographers and visual artists.

# Questions of movement and meaning

From 4-8 April 2006, **Maaike Bleeker** organised *The Anatomical Theatre Revisited* – four days of presentations and performances exploring conceptions of embodiment, subjectivity and knowledge emerging at the intersection of artistic practices and philosophic, theoretical and scientific ideas.[1] The final afternoon of the event was dedicated to Emio Greco | PC's Salon *Questions of Movement* during which the *Notation Research Project* was presented. This was followed by open discussion and debate that helped to establish some of its research directions. The following is Bleeker's statement prepared for all Salon participants in which she suggests that dance and cultural theory may have much to offer each other.

In January 2003, dance company Emio Greco | PC initiated a series of informal gatherings devoted to discussing and debating dance. The impulse that generated this initiative was a perceived inability to meet new developments in movement with adequate verbalisation. The overall theme chosen for the Salons was a question from André Lepecki:

> "Where can dance come to rest after it has been done? Where does dance move to? And how is it revived in the memory during writing? The issue of the fate and the purpose of dance, of its quest and its conviction is coincidental to that of our limited perception, the blindness of the eye which sees dance as a purely physical manifestation."

The goal of the – still ongoing – Salon series is to actively interfere in the ways in which, as Lepecki puts it, dance comes to rest; to question the ways in which this happens (or does not happen) and to contribute to the development of new discourse. Furthermore, the goal is to do so starting from the experience and expertise of the dance maker and in close connection with the practice of dance making. Instead of leaving reflection to critics and academics, EG | PC actively engage in the production of reflection on dance. They represent a new generation of dance makers that instead of being mere objects of reflection, politics, and eventually history, present themselves as partners in dialogue and actively engage in questions of vocabulary, reflection, dance criticism, dance education, art politics and the future direction of dance.

With their Salons, EG | PC present a model for generating reflection on contemporary dance in a way that literally moves along with dance practice. Their Salon is a nomadic institute that travels with them to wherever their performances take them. Salons have taken place in Amsterdam, Paris, Leeds, Vienna, New York and Chicago. They have brought together several recurring guests (Jeroen Peeters, Tang Fu Kuen, Helmut Ploebst and Maaike Bleeker) with local theorists, critics and practitioners working in the field of dance, theatre and performance. On the occasion of *The Anatomical Theatre Revisited*, the Salon *Dance & Discourse* was back in Amsterdam for a special session during the conference.

The starting point for this Salon was, on the one hand, the research project on dance notation and documentation by former EG | PC dancer Bertha Bermúdez and, on the other, Brian Massumi's critique of positionality in his *Parables for the Virtual* (2002).

Bermúdez' project began from the attempt to find or develop an adequate notation system that, as she puts it "is able to capture the indispensable elements involved in a dance performance", in particular an EG | PC performance. Her quest brought her to study various systems of movement notation and dance documentation as they have been developed so far, in order to investigate what exactly these systems notate or document and how. What according to these systems are the indispensable elements of dance performance? How can these be notated or documented in an accurate way? What does accurate notation involve? What is felt to be missing when the information captured by these systems is compared with her personal knowledge of EG | PC's work as well as her experience with transferring her role in these performances to other dancers?

Apart from the question regarding which elements of dance performance are considered indispensable, Bermúdez' project also raises the issue of what it means to capture these elements. What do we do in our attempts at capturing dance? At this point, Bermúdez' difficulty with capturing the indispensable elements involved in dance performance touches upon an observation described by Brian Massumi in his book *Parables for the Virtual*, namely that the transitory character of a body in movement is at odds with attempts at describing or explaining that proceed from a dissection of their object into its essential elements and pinpointing these elements in their mutual relation as well as their location in time, space and discourse. Massumi:

> "The point of explanatory departure is a pinpointing, a zero-point of stasis. When positioning of any kind comes a determining first, movement comes a problematic second. After all is signified and sited, there is the nagging problem of how to add movement back into the picture." (Massumi 2002:3)

On the very first page of his book Massumi describes the aim of his project as being "to explore the implications for cultural theory of this simple conceptual displacement: body–(movement/sensation)–change." Cultural theory of the past two decades, he argues, has tended to bracket the middle terms and their unmediated connection. In doing so, cultural theory has significantly missed the two outside terms, "even though these have been of consistent concern – perhaps the central concerns in the humanities". Bracketing movement/sensation reduces the body to a particular subject position or, at best, a series of subject positions and defines the body-subject in terms of its pinning to the grid of culturally constructed significations.

> "Of course, a body occupying one position on the grid might succeed in making a move to occupy another position. In fact, certain normative progressions, such as from child to adult, are coded in. But this doesn't change the fact that what defines the body is not the movement itself, only its beginning and endpoints. Movement is entirely subordinated to the positions it connects. These are predefined. Adding movement like this adds nothing at all. You just get two successive states: multiples of zero." (Massumi 2002:3)

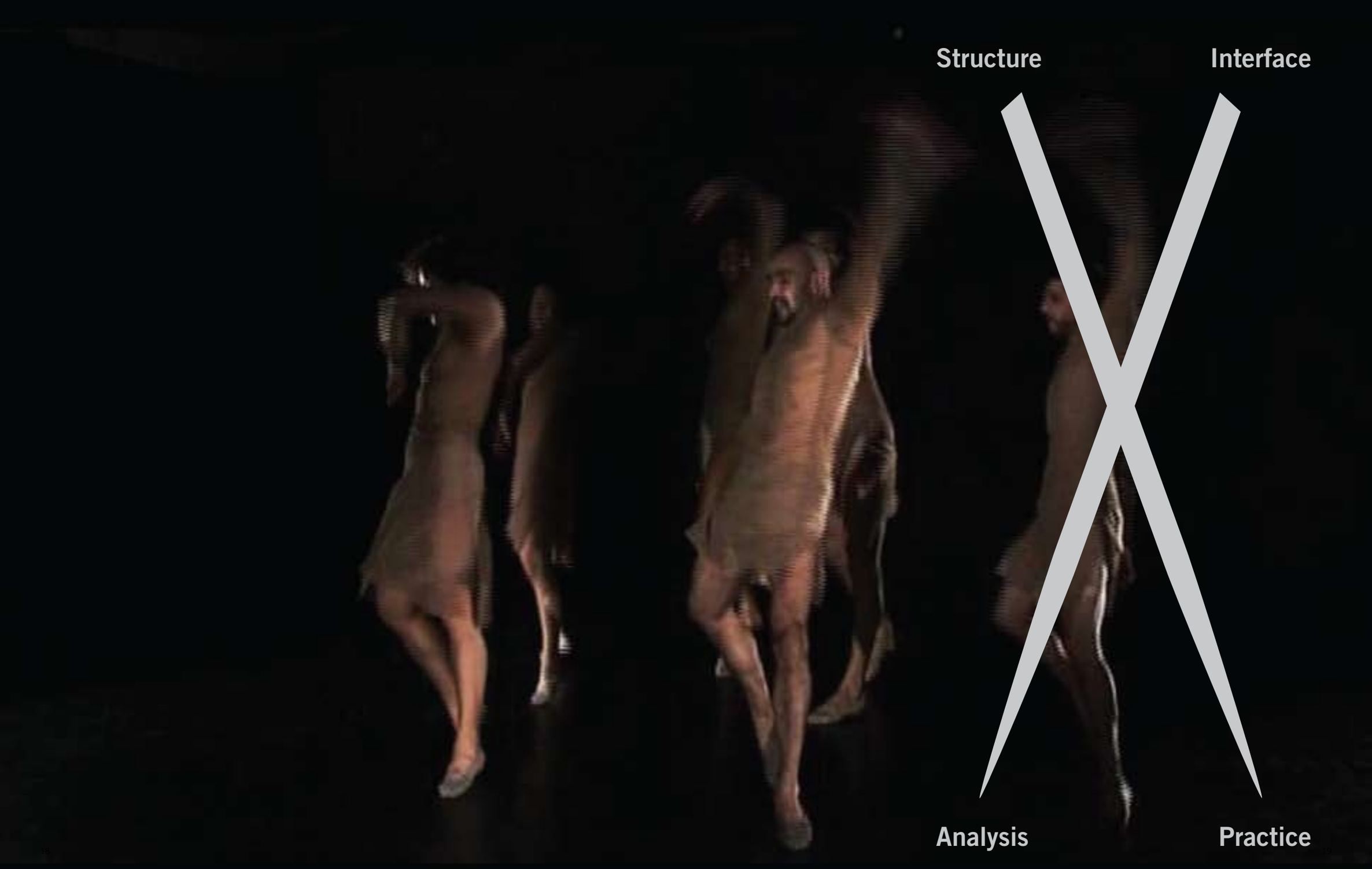
Massumi's critique concerns cultural theory of the past decades, but the implications of this critique are more substantial. His discussion engages with assumptions about the relationship between meaning and movement that are integral to ways of thinking and knowing, and in which defining the meaning of something begins by subtracting movement from the picture. Seen this way, Bermúdez' difficulties with finding a notation system that can adequately capture dance might be paradigmatic for what Jonathan Sawday (1995) terms the *culture of dissection*, in which knowledge is the product of separating out the elements that together make up the object of investigation, and fixing them in their place on a map or in an atlas. On the other hand, it seems that at this point, the experience of dance and of dancers may have important things to say to cultural theory, inviting a reconsideration of the relationship between meaning and movement starting from the primacy of movement over positionality, as well as the intricate relationship between movement and perception.

References:

– Massumi, Brian. *Parables for the Virtual: Movement, Affect, Sensation*. Durham, NC: Duke University, 2002.
– Sawday, Jonathan. *The Body Emblazoned: Dissection and the Human Body in Renaissance Culture*. London & New York: Routledge, 1995.

Endnote:

1 For archived information about the event: www.anatomicaltheatrerevisited.com (accessed 28.08.07)


Structure
Interface
Analysis
Practice

# The moment to question... Double Skin/Double Mind

In Amsterdam in September/October 2004, on the occasion of the revival of the trilogy *Fra Cervello e Movimento: Bianco, Rosso* and *Extra Dry*, EG | PC organised a Salon on the theme of repertoire and archive in relation to contemporary dance. This was the first time **Scott deLahunta** heard Bertha Bermúdez describe the notation research she was doing with the company. At that time, the aim of the research was, in part, to develop a system for documenting and transmitting the company repertoire dating back to *Bianco* (1996). Eventually, as is described elsewhere in this book, it was decided to focus on the *Double Skin/Double Mind* (*DS/DM*) workshop as a 'test case' in documenting, analysing and re-presenting essential elements of the work of EG | PC. In the following, deLahunta describes this process with a focus on the perspective of Emio Greco and Pieter C. Scholten.

*DS/DM* itself originated as a research project when Greco and Scholten were invited to give a workshop during the Internationale Tanzwochen Wien in 1998. This challenged them to ask questions such as: "What is a workshop for us? How to relate it to our work? How to transmit the process of creating a performance, which is not a performance?"[1] They decided to base the workshop structure on the creative processes of *Bianco* (1996) and *Rosso* (1997). Scholten describes this as follows: "We used the way Emio creates. How he makes his body available to the creative process was translated into the workshop." But *DS/DM* is more than just an education or training for dancers, as Greco says, "it is derived from material that has been created for and experienced on stage making it also an artistic work. And this is somehow transported from the stage into the studio to offer some tools and directions".

Since then, Greco and Scholten have presented *DS/DM* several times - in the context of Internationale Tanzwochen and elsewhere - but until the *Notation Research Project* they hadn't found the time to look at the basic structure of the workshop and to ask the question: "What is it now *exactly*?" On the one hand, this may not have mattered so much because they were always making performances, and as long as Greco found the preparation process (from which *DS/DM* was derived) generative there was, perhaps, no need to revise. This, according to Scholten, meant "*DS/DM*, the workshop, always stayed *DS/DM*. It was always the same structure and the same way of working. Different because we were dealing with different people and different qualities, but the basic structure, what we did in Vienna in 1998, we were still doing".

This is not to say that they hadn't begun to question it. For Greco, "already five or six years ago I was thinking not to go into the same creation process, the one that is contained in *DS/DM*. But then I always seem to go back to that. For example, for *HELL* (2006) I thought: okay I will do another process. But then it seemed *not yet*". And for Scholten, "the moment we came together saying: 'Let's take this as a test-case, to do research for the notation project...' was the point at which I was beginning to be fed-up with the structure of the workshop as it seemed we were repeating ourselves". In both cases, they were "starting to feel the need to understand the logic of the workshop and its structure better" when the opportunity to do so came along with the idea of making the *DS/DM* documentary – a process that forced them to rigorously examine the workshop.

Maite Bermúdez describes the making of the documentary in the essay that follows; in it she outlines the seven parts of the workshop detailing the camera choices made for recording each part. She writes about filming Greco and Scholten and their explanations. This was the main challenge of the project for them – to find the words to name and explain the different parts. Just to answer the basic questions, such as why do they start with *Breathing* both found to be incredibly difficult, but also inspiring. Scholten says it was "a hell of a work, but it was a good thing to do. Now it feels like rejuvenation. We didn't change the structure, but it has gotten more layers through this research project. And I think we can go further". For Greco the experience is similar: "When you think about something so much you can move past it. Not throwing it out, but leaving it completely behind you. That's the aim. Getting to the point where the core ideas don't exist anymore. All this activity that goes on now means *DS/DM* still exists. But we're thinking about how far we can go through this process (of analysis, definition and redefinition) to arrive at a completely different approach. Of course, it will come from *DS/DM*, but the original structure may be gone."

This difficulty of finding the right words and explanations was, in part, due to the dialectical tension between them that is inherently a feature of their artistic work, described briefly in the introduction to this book. To 'decide' what and how to name or explain these parts of *DS/DM*, was to allow it to become fixed, to make it concrete in terminology. However, as mentioned, the result of this difficult work served the needs of the making of the documentary. It also produced the hierarchy of sections and subsections so that the DVD and Installation versions of *DS/DM* could be created.

The table to the right is an early draft version of a partial structure for the Installation. The time codes and names are a representation and distillation of a process that took several months to complete, as described and reflected upon throughout this book. When asked what they thought, now that the work had arrived at this stage, Greco said: "It's not something to judge one way or the other. This structure as written out here is like the realisation of something. Some part of this I would still refuse." And for Scholten: "We created this in order to be able to break it. We need to reach this state of concreteness to then rupture and transform it."

For Bertha Bermúdez: "The structure that is used in the Installation and the DVD contains the core of what *DS/DM* has achieved in ten years. We can make it available in this format and pass on this information because we have reflected on it."

| Time Codes | Structure |
|---|---|
| **1. breathing** | **1. breathing** |
| 01:14-05:23 | 1.1.growing |
| 06:49-09:59 | 1.2.ramification |
| 10:53-13:02 | 1.3.exploring |
| 13:02-14:40 | 1.3.exploring |
| **2. jumping** | **2. jumping** |
| 15:52-17:43 | 2.1.gentle_rebounding |
| 17:59-22:32 | 2.2.breaking_action |
| 24:37-26:35 | 2.3.shoulder_breathing |
| 26:37-29:30 | 2.4.strenuous_rebounding |
| 29:30-30:45 | 2.5.walking |
| **3. expanding** | **3. expanding** |
| 31:33-32-35 | 3.1.open_boundaries |
| 32:35-34:35 | 3.1.open_boundaries |
| 34:35-35:39 | 3.2.transfer_of_balance |
| 35:39-36:36 | 3.3.articulated rhythm |
| 36:37-37:20 | 3.3.articulated rhythm |

The first try-out of the Installation for participants took place on 29 and 30 June 2007, at the Theaterschool, Amsterdam. The Installation contains an interactive system for tracking the movement of the participants and comparing this with the filmed version of Greco explaining and demonstrating each part. The Installation designers Frédéric Bevilacqua and Chris Ziegler both describe this in more detail in their essays that follow. The two other essays included in this section by notation specialists Marion Bastien and Eliane Mirzabekiantz give insight into the complexity, difficulties and results of their rich contributions to the research project.

The question asked in 1998, "What is a workshop for us", gave rise to *DS/DM* and the question asked in 2005, "What is it now *exactly*", eventually resulted in the documentation and transmission of *DS/DM* – a 'test case' bringing forth a variety of new tools, methods and directions represented by this publication including the documentary, the DVD and Installation. And these will be brought to bear on the next phase of this research – on the next set of questions...

1 All quotes are taken from a conversation between Emio Greco, Pieter C. Scholten, Bertha Bermúdez, Scott deLahunta. Amsterdam. 19 March 2007.

**Maite Bermúdez**, script writer and film director since 2003, holds an MA in Audiovisual Communication from the Navarra University, a specialization in Script Writing for Cinema and Television from the Autonomous University of Barcelona and a title in History of Cinema specialized in documentary from the Autonomous University of Madrid. Since 1997 Maite Bermúdez has worked for different film producers, first in the area of production and later script analysis. Presently she works as a script writer/analyst and on the creation of documentaries. Her documentary *Double Skin/Double Mind* (2006) produced by Emio Greco | PC has been invited to different videodance festivals among them Cinedans in Amsterdam, Vidéodanse of the Centre Pompidou, Paris and Dança em Foco in Brasil.

# Capturing Emio Greco | PC

**Maite Bermúdez** directed the filming of the documentary of the workshop *Double Skin/Double Mind*, available for viewing on the DVD that accompanies this book. In the following account, she provides an important glimpse into this process including how taking part in the workshop influenced her thinking and the difficult necessity of making clear decisions about the structure of the workshop. This structuring has been described elsewhere in this book as instrumental to the overall project.

**Cinema documents dance**
I consider cinema as an immediate, present art form that allows the viewer to revisit information. In relation to dance, this quality of immediacy offers one possibility of capturing its volatile nature.

Cinema selects what the viewer looks at by using different tools like shots, angles, lights, sound and, of course, editing. When working with dance, different movements will be selected, different body parts will take importance and emphasis will be placed there where we want the audience to focus their attention. This means that by using film an opportunity of explanation is added to dance in the sense that it allows a recorded testimony or explanation to be revisited. It becomes a document.

**Framing a body**
I have always wanted to see time frozen.

The stage curtain opens and time is suspended. How does it look? There is a human body. A human body is the map of time. We can get to know what time is by observing someone walk. Do we all walk in the same way at 06h00 in the morning as at 09h00 in the evening? Age is written on the skin. Hopes, dreams and feelings can be sensed in the posture of our shoulders, in the tranquillity of our eyebrow or in the swing of our hips. A gesture contains time and can let us know its past, present or future states. So the stage curtain opens and in the instant I can frame a body, I can frame time.

Every time I have seen someone dance, I have wanted to capture not only the gestures, but also what was left behind – the trace. The dancer moved through space but his/her time was kept somewhere else. It was in those other spaces that I used to recreate sensations, tastes and memories in my mind. To make them live longer I thought of saving them. A camera seemed to me to be the best way.

**A phone call**
– What are you doing now?
– I have just finished doing research on a Cuban documentary maker, Sara Gomez, and would like to do a documentary.
– About what?
– I am not sure… but I am thinking about dance, movement, cinema, you know, the old story.
– Well this year is the tenth anniversary of the company and we were thinking to do something special. We are quite busy with issues of documentation and maybe it would be great to document the workshop?

That was the beginning of this exciting project.

*Double Skin/Double Mind* has been my first incursion into the world of documentary film as a director. Before this, I worked as a script writer and directed short movies. So this film was a great challenge for me because I could connect different fascinations: dance and cinema.

The beginning of the research period was my personal experience as a participant in the workshop. In June 2005, I followed a *Double Skin/Double Mind* workshop at the School for New Dance Development, Amsterdam School of the Arts. This physical experience helped me to understand and be aware of the workshop structure, the different parts of the body involved, the different movement qualities, and even more importantly: the reasons that made me move. It was really important to realize that the movement was not gratuitous and that everything led to something and came from something – a strong need.

Before this experience I had observed some performances by EG | PC and had always sensed a need or urge behind the movements. Now it was really interesting to experience it with my own body. This physicalization included other elements like tiredness, achievement and the idea of going beyond established physical borders. All of this I considered vital for the preparation of the filming.

**Filming Emio Greco | PC**
Vienna Workshop. ImPulsTanz August 2005.

After my muscles went back to their normal shape and consistency the preparation of the filming took over. Sitting in an open air theatre in Avignon, watching *Double Points: HELL* (a performance EG | PC created during the summer of 2005), ideas started to emerge. Talks with Pieter C. Scholten, Emio Greco and Bertha Bermúdez in between the rehearsals of that performance, placed me inside a way of working and thinking. During those talks we started preparing for Vienna where EG | PC were invited to give a five-day workshop at the ImPulsTanz Festival. The length of this workshop offered a perfect possibility to work in depth with the same dancers and workshop structure.

Within a very short time a spontaneous film session was organized. Two cameras, two microphones, many notes and lots of energy constituted the equipment. From the beginning I tried to treat film, not as an outsider of the physical experience, but as another language that was aiming to achieve its own understanding of the workshop. The camera had to experience the workshop as both a dancer and a spectator. To accomplish this relation, each part of the workshop was treated with different cinematographic elements.

The first decision made after finalizing the script was to make use of two cameras. One to film Greco and Scholten and their explanations, and the other to film the participants. The existing duality within the teacher-student relation to me was a mirror of the duality within the title *Double Skin/Double Mind*. This duality became very important when deciding on the use of the cameras. The camera filming Scholten and Greco was static (on a tripod) and the other was a handheld camera aimed at the dancers. I wanted to show the difference between the feeling of security and knowledge when you are transmitting (leading the workshop) and the curiosity and insecurity when learning. The handheld camera moved around between the dancers, trying to catch their bodies and their expression from different angles.

Due to the length of the workshop the cinematographic elements were developed to give the camera the best possibility to capture the changes and transformations involving the dancers' expectations, curiosity and comprehension. The main question was how to use the different camera shots, in which relation to the workshop structure, so that they could express the different qualities. To answer this question, I decided to make a list and define different shot treatments for each part.

**Table: Use of the camera**

| | |
|---|---|
| **1. Presentation.**<br>Make clear the distance and expectation factor.<br>Handheld camera for the group filmed with short shots, and steady with EG and PC.<br><br>**2. Breathing.**<br>Short shots (arms, knees, mouth, feet).<br>Close-ups.<br>Middle shots.<br>Empty shots, to get lines and directions.<br><br>**3. Jumping**<br>Panning (high speed)<br>When cutting the action of jumping the camera creates a sensation of floating.<br>When walking it follows the feet. | **4. Expanding**<br>High camera (in the space)<br>Long shots to see the space and show the choices made by the dancers.<br><br>**5. Reducing**<br>Close-ups different parts of body.<br>Floating.<br>Space inside the body.<br><br>**6. Transfer**<br>Duality teachers – group.<br>Static and steady. Focus on different dancers to see their evolution (also in all the other parts, but here it is more clear).<br><br>**7. Aftertalk**<br>Static general shots. |

The use of space was another important area to consider. Comprehension, learning and assimilation of new information all had a 'synonym' in the space. The distances between the dancers and Greco were like a bounding box stretching and bending in relation to the degree of understanding. The more the dancers understood of the workshop, the smaller the space between Greco and them. It was the opposite when they felt insecure. In these situations a whole dramaturgy of action-reaction was accomplished, in ways very similar to the action-reaction chain that the body experienced during the workshop.

**Second Phase: filming the company, Amsterdam**
After many hours behind the computer digitizing, transcribing and observing the filmed material from the Vienna workshop, I decided to film the structure of the workshop once more. The first filming period had opened up questions around the definition of the workshop, making it necessary to do a second filming session. This time it would be in a more static and clean space where I could work with Greco and the dancers of the company. The aim was to show the structure and the essence of the movement with more clarity.

A second script was made for which a black box was needed. The aim of using the black box was to select and limit information for the viewers, in such a way that they could focus solely on the structure of the workshop. The black box also offered a possibility for linking the workshop material with material from the artistic creative work of EG | PC, which I felt was necessary for the overall structure of the documentary.

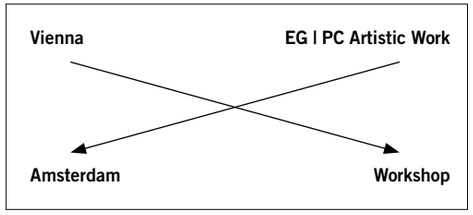
Adjusting to the agenda of the dance company, the second filming session was planned for the end of 2005. This time only one camera was needed, and the working space of the company in Amsterdam at the time offered the opportunity to create special filming conditions. Besides the black box, an additional black space was built where the *Seven Necessities* of the company were filmed.[1] The idea was to let the seven statements enter the world of the workshop, linking it with the work.

In this second filming session more interviews took place with Scholten, Greco and the dancers and I tried in all of them to get a definition – a description of each part of the workshop. The mix of these interviews with the rehearsal atmosphere provided a natural link to the artistic creative work.

**Structuring Double Skin/Double Mind**
An X

While filming the second phase, I was editing the Vienna workshop material at the same time, and conceptually and intuitively, the structure of the documentary gradually started to grow into an X. Each line of the X represents one of the two filming phases: the workshop in Vienna and the company in Amsterdam. The artistic matters, on the one hand, and the educational matters, on the other, cross and are *interdependent* and may change order according to the daily work processes on the performances or the workshop, as the case may be.

In one of the interviews Greco mentioned that he felt the most creative moment during *Reducing* (one of the different elements of the *Double Skin/Double Mind* workshop). For him, this is the moment when the ideas appear. This comment relates to the axis of the documentary structure, where in a small turning point the main interest shifts from the teaching process to the company's way of working within the creative process.




During the period of filming the company in Amsterdam, Scholten and Greco were engrossed in a new creative process, making their most recent performance, *HELL*. At that point I decided to research the different ways of capturing and documenting a creation process. I felt that half of this research was already done, because of the knowledge gained while filming the workshop documentary, for example the chosen camera shots and angles. Despite this acquired knowledge, I was not able to investigate the artistic creative process of EG | PC in depth. That is why I decided to create another documentary *Imagining Hell*, a filmed documentary where the artistic creative process of *HELL*, the general theme of hell, and its relation to cinematographic elements and issues can find a common space inside my camera.

*Seven Necessities:* **1. Il faut que je vous dise que mon corps est curieux de tout et moi: je suis mon corps** *Curiosity* **2. Il faut que je vous dise que je ne suis pas seul** *Dialogue* **3. Il faut que je vous dise que je peux contrôler mon corps et en même temps jouer avec lui** *Choice* **4. Il faut que je vous dise que mon corps m'échappe** *Contradiction* **5. Il faut que je vous dise que je peux multiplier mon corps** *Challenge* **6. Il faut que je vous dise qu'il faut que vous tourniez la tête** *Doubt* **7. Il faut que je vous dise que je vous abandonne et que je vous laisse ma statue** *Heritage*

1 The Manifesto *The Seven Necessities*. Summer 1996.

**Frédéric Bevilacqua** is researcher at IRCAM in gesture analysis and interactive music systems in the Real Time Musical Interactions team. He holds a master in physics and a PhD in Biomedical Optics from the Swiss Federal Institute of Technology in Lausanne. He studied music at the Berkeley College of Music in Boston and participated as a musician in several artistic projects. From 1999 to 2003 he conducted research at the Beckman Laser Institute at the University of California Irvine, and collaborated in motion capture and interactive installations with the UCI Music and Dance Departments. In this project he is involved in the area of gestural analysis. imtr.ircam.fr/

# Momentary notes on capturing gestures

Research in the field of interactive computer-based technologies has, for many years, sought solutions to one of the most difficult problems facing the field: how to capture complex gesture and movement and convert this data into useful information for a variety of purposes including commercial, scientific and/or artistic. In the following essay, interdisciplinary team member **Frédéric Bevilacqua** gives a personal background account for his work on gesture capture and analysis leading up to his current research with the *gesture follower.* It is this research he brings to the *Notation Research Project* in the form of the question: "How to track how a movement is performed?" Versions of the *gesture follower* have been implemented in both the *DS/DM* Installation and the DVD-ROM that is available with this publication.

My current interest in interactive digital media began shortly after moving to the University of California Irvine (UCI) in 1999. More than eight years of dealing with this subject is both short and long. Short compared to decades of experimentation by some practitioners in this field.[1] Long enough to define research goals that might occupy me for many more years. In the following, I sketch out some of the questions and paths related to the goals I have chosen.

I started this research into interactive media as a side subject, principally motivated by my music practice. This finally took over my former research focus conducted at the Beckman Laser Institute; and I went from characterizing tumors (by measuring the time of flight of light traveling through tissues) to characterizing human motion. Different space and time scales, but surprisingly sometimes similar technologies.[2]

Through collaborations with the UCI School of the Arts I began to use various motion capture systems.[3] My first aim, established in collaboration with Christopher Dobrian (a composer and professor at UCI), was to use the tracking of the whole body motion to control digital sounds. Not a new idea even at that time, but interestingly something that is still attracting a growing number of people. I realized later that we were at a sort of a turning point; when after a long period of pioneering work, the development of gestural interfaces for digital media emerged as a core concept. For example, the international conference on New Interface for Musical Expression began in 2001, and grew significantly over the years.[4]

This emergence has been evidently fueled by the convergence of several disciplines from computer science to neuroscience dealing increasingly with human motion. The consideration of gestures in the Human–Computer Interfaces field grew considerably over the last ten years (for example Paul Dourish introduced in the late 1990s the concept of *embodied interaction*).[5] A rapid search shows that the number of scientific papers with the keyword 'gesture' augmented exponentially since the 1990s. The fairly recent appearance of video games using gestural control beyond classic controllers is just another confirmation of this trend (for example EyeToy or the Wii). Is this just a fad or are we at the beginning of something new?

I was fortunate to get started simultaneously on quite different motion systems: the 'old' Very Nervous System (VNS, the hardware version before softVNS) by David Rokeby and a full body 3D optical motion capture system.[6] The VNS system used a single camera and reported real-time information on presence of motion in a space grid. This was like a crash course on one of the most frequent paradigms used in interactive art: the response depends on 'quantity of motion' or presence at particular *spatial* locations.

Compared to the VNS system, the 3D motion capture system was quite opposite in many regards, resolution, technical complexity and price. Designed for computer animation or biomechanics studies, the actual 3D skeleton was computed, and the precise 3D coordinates of more than 30 points on the body were directly accessible to visual rendering. I experienced first hand the well-known experiments by Johansson in the 1970s on the perception of human movement represented by moving dots (called point-light displays).[7] It is always quite amazing to see how easily we can interpret human motion or recognize a person even if the body representation is extremely simplified or abstracted. The hard part of my research started when trying to find pertinent ways to interpret the motion capture data to control sound processes. With more than thirty markers placed on the body in a standard procedure, and the 3D spatial coordinates of these giving up to 90 temporal curves – the result is a very large volume of data being generated every second of motion capture. How to extract pertinent information out of so much data coming from so many different parameters?

The formulation of this question is of course too imprecise. Every application from biomechanics (gait analysis, rehabilitation, sports medicine or training) to computer animation requires different types of information. For example: a limited number of joint angles might be sufficient to study a specific biomechanics problem; the reconstruction of a basic skeleton can be sufficient for character animation. In such cases, the choices of the motion parameters can be directly derived from the motion capture data, specifically formatted for such relatively standardized applications. In contrast to this, the use of a 3D motion capture system as a gestural interface requires manipulating its formatted outputs to fit an interaction process, still to be created. This remains relatively easy if simple actions are chosen as the basic elements for the interaction - for example pointing or going to a particular spot in space. Such examples are a direct extension of common computer interaction paradigms, e.g. 'select' and 'move' using a mouse or joystick. As a matter of fact it is sometimes difficult to think beyond our daily use of standardized ways of interacting with a computer.

Nevertheless, translating such simple interaction paradigms into artistic practices is generally considered to be limiting (even though important interactive art pieces were created following such lines). More and more new challenges are sought among practitioners (discussed for example during workshops at the Monaco Dance Forum in 2004 and 2006).[8] Collaborations and informal discussion with choreographers and dancers always point towards concepts such as 'movement qualities', 'pre-movement' and 'intention' (note that these words might have several different meanings for different choreographers).

The experience I gained with the 3D motion capture convinced me that a major limitation of the use of motion capture in arts remains the generally poor tools available to *interpret* motion data. Somehow, for artistic purposes, a simple single-camera system should be hardly more limiting than the 3D motion capture. Consider a simple webcam: 'movement qualities' are at least partially captured in the digital image, even with a fairly low resolution. We can observe it with the human eye, but methods to extract such information from the digital data stream are still in their infancy.

This realization laid down the ground for a research program I started at IRCAM (Institute for music/acoustic research and coordination in Paris) when joining the Real Time Musical Interactions team at the end of 2003.[9] The general focus was on gesture analysis and technology for performing arts.[10] More precisely, I formulated the research originally as seeking to compute from gesture data 'high-level parameters' of movements similar to the ones used by choreographers in creation and performance.[11] These high level parameters could refer for example to 'movement qualities' and would be thus more easily graspable by artists. Such a goal was close to approaches of other research

groups, for example Antonio Camurri and coworkers at the University of Genoa, or the *motion*$^e$ project at the University of Arizona.[12]

Of course, a fundamental problem resides in the fact that these 'high-level parameters' are not clearly defined concepts. Depending on the context they might refer for instance to heterogeneous elements such as physical motion parameters, perceptive or semantic aspects. One tendency would be to deal with motion characteristics broadly accepted from a perception point of view, and to explicitly cross over psychology and neuroscience research. As a start, I chose a different path: a high-level motion property must be freely defined by the artist; and the practical and direct way to define such properties is to use examples provided by the artist. Therefore, the analysis and any subsequent vocabulary are derived from these examples. Of course, this leads to generating parameters valid only in very specific cases, with no promise of generalization. Thus, the analysis is directly dependent on the given context.[13]

This approach might seem at first in contrast to scientific research, where general results are sought. However, some important points need to be clarified. First, I do not consider the subject of my research to be human motion, gesture or dance *per se* but the design of gestural interaction (design here must be understood in the broad sense it is frequently used in nowadays). My contributions to artistic/research projects reside often in proposing methodologies related to the use of motion capture. Second, I believe that careful case studies will eventually produce general results in this field. The development of too general computerized motion analysis systems in the context of contemporary artistic practices seems to me counterproductive at this stage, due to the obvious divergence of aesthetics.

Importantly, this approach draws directly on established methods from a subfield of artificial intelligence called 'machine learning'. This research area is concerned with how pattern, shape and gesture might be automatically *recognized* by computational methods. This *recognition scheme* is based on a set of labeled examples that allows the computer to 'learn'; and it is on this basis we have started to develop the *gesture follower.*[14]

Established methods exist to perform voice, writing or gesture recognition, evidenced by their spreading use in computer, game and phone interfaces. Nevertheless their application in artistic practice remains challenging. The *gesture follower* aims to respond to this situation by developing an ensemble of software tools for use in artistic/research practice.[15] In particular, machine learning methods often rely on cumbersome 'learning and training phases' where a large number of examples must be provided to guarantee the algorithm to work with a heterogeneous population. Here again, the goal was to develop an automatic recognition system working only in limited cases, but with the advantage to define these cases very easily and quickly.

The general idea behind the *gesture follower* is to compare a performance with prerecorded ones. Basically, the first step corresponds with choosing one or several phrases that will be recorded and stored in the computer memory. The choice of these phrases is a crucial step; they should be representative of a gesture vocabulary or contain meaningful qualities for the artist. The second step occurs during the performance: the computer program assesses in real-time whether similar vocabulary/qualities are present. The results can be output as 'likelihood scores' expressing the similarities of a given performance to the stored ones in the database.

The first phase of recording, selecting and labeling phrases can be considered as annotating material. This annotation can also include highlighting short moments of phrases, adding for example graphical annotations on a timeline representation of the gestures (in Figure 1, the vertical marker lines or the green shape are examples of such annotations). Such processes are common in artistic practices, even if this might be achieved using radically different means, writing notes, using video etc. These annotations can be used as a basis for the design of the interaction process that occurs during the second phase, i.e. the performance. Some examples will be given later.

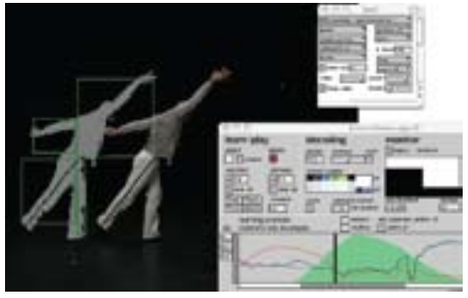


Figure 1. Screen shot showing the *gesture follower* interface during experiments with EG | PC.



The most important point to note here is that this approach does away with the need for the artist to know the details about the actual motion capture data, how it is captured and what positional referents it has. This methodology is independent, to some extent, of the motion capture technology itself. Of course, the technology must be adequate to the type of movement. For example: fast movement will require high temporal resolution, very small gestures must be captured with sufficient sensitive sensors. But, there is no need to work directly with the raw data, which often is very counterintuitive. The *gesture follower* is designed as an attempt to solve this constant problem with motion capture technology: there is generally a gap between our gesture representation and the actual captured data. I will come back to this after describing some of the artistic projects that were important for the advancement of the *gesture follower*.

The actual development of the *gesture follower* started in 2004, and it has evolved through many trials, discussions and artistic research projects and creations. I must acknowledge all of my colleagues on the Real Time Musical Interactions (IMTR) team and the Performing Arts Technology Research team for contributions to this project, which has been synergetic with the various teams' works.[16] Particularly, the algorithm developed for the *gesture follower* is directly influenced by the *Score following* technology developed in the IMTR team.[17] Also the development of the software FTM, led by Norbert Schnell, has been instrumental for the practical application of the *gesture follower* in artistic contexts.[18]

The first step, developed in collaboration with Rémy Muller, was to automatically provide timing correspondence between a live and a recorded performance. In other words, the aim was to synchronize similar movements occurring naturally at different speeds. Such a procedure would tell us *where we are in the phrase*, which is helpful for example to compare movement characteristics at particular key moments. This first stage of development was achieved using video recording of short choreographic phrases created by Hervé Robbe.[19] The first prototype was able to synchronize two different videos of a phrase performed by two different dancers. However, our work on the *gesture follower* remained just a 'proof of principle' unusable on stage then.

The next collaboration was with Paris based choreographer Myriam Gourfink on her creation *This is my house*, a project that significantly advanced the development of our first real tools for dance. The structure of the piece was based on an 'open score'. A computer program was designed to make choices on the progression of a score viewed by the dancers. This selection depended on the real-time analysis of data obtained from sensors attached to the costume: "The technology (…) allows progressively during the flux of the piece, to structure situations, new contexts that the dancers interpret".[20] After several experiments, four types of analysis tools were selected: phrase recognition (based on a prerecorded one), synchronicity between dancers (for example breathing synchronicity), cyclicity (evaluation of phrase repeat) and activity. Rémy Muller implemented these tools and tuned them during rehearsals. The phrase recognition used a prerecorded phrase while the synchronicity and cyclicity analysis were based on comparing gestures recorded during the performance itself. These comparison procedures were found to be effective for the piece (see also endnote 11).

This collaboration with Gourfink reinforced the importance of considering a phrase as a time process. All the movement analysis tools were directly based on time properties. In particular, the phrase recognition schema was not trying to recognize postures (as is common with other projects such as *motion*$^e$), but the transition between postures.

The development of the *gesture follower* was further consolidated through collaboration with artist and researcher Alice Daquet. During a residency in our team at IRCAM, she used the *gesture follower* to control sound in two performances called I.D.O. and I.D.L.[21] Various gestures were chosen and linked to particular sound files. The phrase recognition and synchronization allowed her to precisely control the simultaneous mix of several audio processes. Since this project, the *gesture follower* has been further developed and increasingly used at IRCAM in music practices, in both pedagogy and in music creation.[22] For example, it is integrated in a current collaborative research work with composer Florence Baschet on an augmented string quartet. [23]

I will finish with a brief overview of the EG | PC notation/documentary project, which presented a unique opportunity to pursue my reflection on the use of movement capture in dance in a multidisciplinary workgroup. A first set of experiments was performed during

fall 2006. Several phrases from the workshop *Double Skin/Double Mind* were recorded with a mixed capture system using both sensors attached to the body and video analysis (EyesWeb).[24] In particular we focused on two choreographed phrases danced by Bertha Bermúdez and Emio Greco (around 30 seconds long) that we recorded several times. This choice was driven by the need for having phrases with precisely specified movements, which greatly facilitates the comparison mechanism of the *gesture follower*.

Different tests were tried. First, we segmented one of the recorded phrases into subsections; this is an example of the 'annotation phase' described earlier. When performing the phrase again, the *gesture follower* was set to recognize these subsections and output a sonic signal (a 'click'). According to both the dancer (Bertha Bermúdez) and the viewers, the sound was heard at the right time, indicating that the system was able to segment the phrase correctly.[25]

Nevertheless, the assumption that one can segment a phrase at precise and unique times can be problematic in dance (see for example the interesting study by Scott deLahunta & Philip Barnard).[26] This limitation can be dealt with considering more general time events occurring during variable segments. To experiment with such an idea, we recorded a particular section of the *Double Skin/Double Mind* workshop where the breathing phases – inhale/exhale – can be defined as contours/shapes (but not measured by our sensors). After recording this gesture, an 'ideal' breathing contour was drawn manually on the timeline representing the phrase. This constitutes another example of possible annotation. The follower makes possible a precise synchronization of our drawn curve, generating a breathing sound, with the body movements. The dancer is then 'followed' by a breathing sound, either stretched or shortened, depending on how slow or fast the phrase is performed.

These experiments led us to incorporate such interaction paradigms into the installation built in the framework of the EG | PC notation/documentary project, that was further developed in 2007 (see Figure 2). Basically, as they move according to the instructions and example shown on a screen, the participants in the installation space receive a range of sonic feedback. A major question remains regarding the possibility of providing information related to 'how' the movement is performed. Preliminary tests were carried out using multiple occurrences of the same phrases. This showed that the system can determine which ones are similar. Finding similarity between the performance and stored ones in a database can be one mechanism to characterize motion qualities, if each phrase of the database has been labeled. The fact that using our software tools makes it possible to experiment with such questions and points towards future developments and debates is exciting.

Figure 2. Picture showing the preview of the Installation in June 2007.

I will close this essay by reformulating some statements I explained earlier. First, I want to be precise about a particular methodological point. If I describe my research as extracting high-level parameters of movement: this is neither a bottom-up nor a top-down approach. It is somehow a mixed approach aiming to bridge between our gesture representation and the data provided by the technology. By gesture representation I refer to abstract forms (mental or body knowledge) of gesture/motion, almost always present in time art forms. These abstract forms are independent of any gesture capture system.

Making links between our abstract gesture representation and the gesture data is problematic. I always find it difficult to explain this to people who have little experience with motion capture systems: they often do not realize this frustrating gap between how they think about gesture and how actual capture systems behave. As a matter of fact, data often corresponds to a sparse and non-intuitive representation of what body motion is. This leads to practical difficulties when working with gesture capture technology, which sometimes gives the impression that the problem is with the technology itself, while it is more often with the methods of tool use.

The approach I chose is based on the recognition that both our abstract gesture representation and actual gesture data generally share common time properties, and the links between them can be expressed as time relationships. For example, features occurring simultaneously in both representations can be made explicit. This can correspond to adding markers and profiles to a timeline as I described earlier. The *gesture follower* embodies such an approach, as it considers phrases as temporal objects we can observe – we can 'look inside the phrase' to find salient moments or try to predict what is going to happen. These temporal objects can also interact with other objects, sounds for example. This represents a different view on the usual interaction paradigm considering frame/posture as basic elements. Typically, the relationship between gesture data and sound or visuals is referred to as 'mapping', a clear reference to the consideration of primarily spatial relationships. I hope to have indicated another path here, another type of interaction where time is central.[27] This approach seems to bring promising results and further questions for researchers to continue to pursue. Probably for a long time...

All URLs accessed on 07.07.2007.

1 See, for example:
- Dixon, S. 2007. *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation*. Cambridge, Mass./London: MIT Press.
- Wilson, S. 2002. *Information Arts. Intersections of Art, Science, and Technology*. Cambridge, Mass./London: MIT Press.

2 Some methods and algorithms used are similar (for example based on probabilistic methods) and some of the technology takes advantage of similar advances in photonics (camera for example)

3 - Bevilacqua, F., Ridenour, J., Cuccia, D.J. 2002. 'Mapping Music to Gesture: A study using 3D motion capture data'. *Proceeding of the Workshop/Symposium on Sensing and Input for Media-centric Systems*, Santa Barbara.
- See also: Christopher Dobrian. music.arts.uci.edu/dobrian/motioncapture

4 www.nime.org

5 Dourish, P. 2001. *Where the Action Is: The Foundations of Embodied Interaction*. Cambridge: MIT Press.

6 homepage.mac.com/davidrokeby/home.html and www.vicon.com

7 Johansson, G. 'Visual Perception of Biological Motion and a Model for its Analysis'. *Perception and Psychophysics* 14, 201-211 (1973).

8 See:
- deLahunta, S. 2003. 'The Dimensions of Data Space'. *Anomalie digital_arts #3: Interfaces:Theories & Applications*. ed. Emanuele Quinz. Paris: Anomos., 72-79.
- *Scientifiquement danse. Quand la danse puise aux sciences et réciproquement*. 2006. *Nouvelles de Danse* n° 53, éditions Contredanse, Bruxelles.

9 Real Time Musical Interactions team imtr.ircam.fr

10 This research was also part of the Performing Arts Technology Research (www.ircam.fr/301.html?L=1) grouping several IRCAM teams.

11 DeLahunta, S., Bevilacqua, F. 2007. 'Sharing Descriptions of Movement'. *International Journal of Performance and Digital Media*. 3(1) pp. 3-16.

12 www.infomus.dist.unige.it/eywindex.html and ame.asu.edu/motione

13 Formalizing what a context is can be a matter of discussion, see for example: Dourish, P. 2004. 'What We Talk About When We Talk About Context'. *Personal and Ubiquitous Computing*, 8(1), 19-30.

14 Bevilacqua, F., Muller, R. 2005. 'A Gesture follower for performing arts', *Proceeding of the The 6th International Workshop on Gesture in Human-Computer Interaction and Simulation*, Berder Island France; Muller R. 2004. *Human Motion Following system using Hidden Markov Models and application to dance performance*, (Master thesis), IRCAM; Bevilacqua, F., Guédy, F., Schnell, N., Fléty, E., Leroy, N. 2007. 'Wireless sensor interface and gesture-follower for music pedagogy', *Proceedings of the International Conference of New Interfaces for Musical Expression* (NIME 07), 124-129 NY.

15 Bevilacqua, F., Muller, R., Schnell, N. 2005. 'MnM: a Max/MSP mapping toolbox'. *Proceedings of the International Conference of New Interfaces for Musical Expression* (NIME 05), 85-88, Vancouver.

16 Thanks to past and present colleagues and friends at IRCAM: Florence Baschet, Julien Bloit, Riccardo Borghesi, Arshia Cont, Alice Daquet, Aymeric Devergie, Emmanuel Fléty, Donald Glowinski, Fabrice Guédy, Jean-Philippe Lambert, Frédéric Leau, Nicolas Leroy, Rémy Müller, Nicolas Rasamimanana, Norbert Schnell, Diemo Schwarz, Anthony Sypniewski. imtr.ircam.fr/index.php/People.

17 Schwarz, D., Cont, A., Schnell, N. 2005. 'From Boulez to Ballads: Training Ircam's Score Follower'. *Proceedings of the International Computer Music Conference* (ICMC). Barcelona.

18 Schnell, N., Borghesi, R., Schwarz, D., Bevilacqua, F., Muller, R. 2005. 'FTM - Complex Data Structures for Max'. *Proceedings of the International Computer Music Conference* (ICMC), Barcelona.

19 Two different dancers performed several short phrases twice (typically less than 1 min long). This database was recorded as part of a collaboration between IRCAM, Hervé Robbe and the composer Andrea Cera, who used it in his composition process. See www.ircam.fr/671.html?&L=1#2651

20 www.myriam-gourfink.com/Projects/Projects.htm

21 *I.D.L.* was performed at Point Ephémère during the *International Conference of New Interfaces for Musical Expression* (NIME 06) in Paris and *I.D.O* at LE CUBE (France).

22 Part of technical development of the *gesture follower* is included in the *I-MAESTRO* project, partially supported by the European Community under the *Information Society Technologies* (IST) priority of the 6th Framework Programme for R&D (IST-026883, www.i-maestro.org).

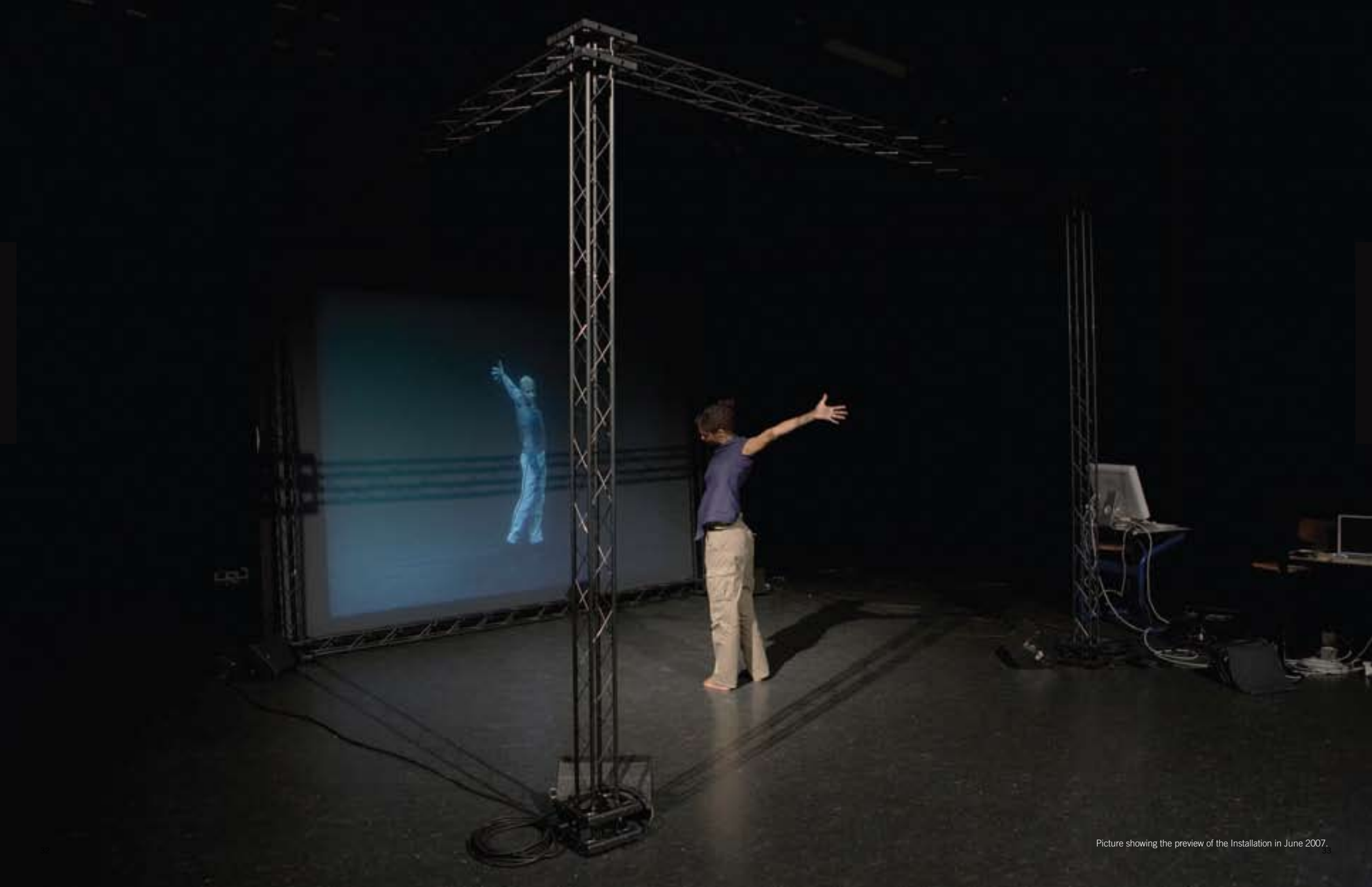
23 Each bow of the string instruments is augmented with sensors (accelerometer, gyroscope and pressure sensors) giving access to bowing parameters. The bowing gesture will eventually be used to control in real-time electronic sound processes. A research phase started in late 2006 using the *gesture follower* as a means to characterize bowing. Here again, similar paradigms are used: recording gesture example and compare. Current work seeks to establish parameters linked to interpretation variations.

24 www.emiogrecopc.nl/public/index_en.php?thisarticle=216; EyesWeb URL: www.eyesweb.org/

25 This constitutes of course no rigorous proof. Systematic quantitative studies of the accuracy of the *gesture follower* are currently carried on.

26 DeLahunta, S. Barnard, P. 2005. 'What's in a phrase?' *Tanz im Kopf: Jahrbuch 15 der Gesellschaft für Tanzforschung*. J. Birringer & J. Fenger (Eds). Hamburg LIT Verlag. pp. 253-66

27 Should we call it *time-based interaction*? Some elements discussed here can be also found in
- Lee, E. 2005, 'Designing Time-Based Interactions With Multimedia'. *ACM Multimedia Doctoral Symposium*, 1037 - 1038, Orchard, Singapore, ACM Press.
- Lee, E. and Borchers J.. 2005. The Role of Time in Engineering Computer Music Systems. *Proceedings of the International Conference on New Interfaces for Musical Expression* (NIME 2005), Vancouver, pp 204-207.



Picture showing the preview of the Installation in June 2007.

Since 1993, **Chris Ziegler** has worked as a freelance media artist at ZKM Karlsruhe, where he has done projects with Ballett Frankfurt, the Goethe Institute and the National Gallery of Canada. Since 2000, he has produced installations and interactive dance performances, that are shown at many festivals. He has been invited internationally, to teach and give workshops in dance and new media. In this project he is responsible as designer and programmer for the interactive DVD-ROM and Installation. www.chrisziegler.de

# Electronic memory design

**From archiving to rehearsal software**

As an interactive media artist and designer, **Chris Ziegler** has been engaged since 1993 on several projects involving the creation of choreographic and dance information interfaces. In the following account, he gives a short description of those projects he worked on before the *Double Skin/Double Mind* Installation and DVD-ROM. In each, the distinctness of the questions related to different dancing bodies, ideas and intentions is explored; along with their design solutions. Ziegler closes with a description of the state of the research on the *DS/DM* project just following the Amsterdam Preview of the Installation 29-30 June 2007.

In the early 1990s, the World Wide Web, as a 'public digital memory', and the CD-ROM were emerging as promising new approaches to documenting and archiving artistic knowledge. This was when I began my work, in 1993, at the Center for Art and Media (ZKM), Karlsruhe in the Department of Visual Media. The aim of the Department was to build up a MediaLab dedicated to developing interactive media installations for museum exhibitions and CD-ROMs for publishing. In addition to publishing content on CD-ROM, such as for ZKM art-catalogues, we also gave artists the means to explore them as an artistic platform.[1]

**Digital dance archive: visualizing space and time**

My first assignment with the MediaLab was a series of projects with choreographer William Forsythe who had invited the Lab to assist him and his company, Ballett Frankfurt, in building up a digital video archive.[2] The company was seeking innovative ways to archive and access their large number of rehearsal and performance videos. There were at least two aims for these projects: one was to support new dancers in learning the works of the company before going into rehearsals. The second was to properly document the rehearsals and performances of choreographies that were evolving over time, that resisted being 'finished'.[3] Our first project was to create an archive of the developmental changes of the choreography *Loss of Small Detail* that premiered in 1991.[4]

As part of this project, a prototype interactive media installation was designed to support the preparation of new dancers. This installation, set up as a single terminal, gave access to the history of rehearsals and performances and included a first try-out of simultaneously recorded camera angles. It also included short lectures by Forsythe in which he introduced the movement principles of 'improvisation technologies'; a technique he had developed for 'real-time choreographies'. This is when we first used graphic overlays to augment his lectures. (Figure 1)

These visualizations made it much easier to understand the 're-organised' relations between body, space and time he wanted his dancers to understand and work with. Another archival project, completed in 1994, focused on the development of a new work *Self Meant to Govern* for which a unique 'knowledge base' of videos, including rehearsals and the premiere performance, recorded to facilitate an interactive multi-angle camera interface, was created.[5] (Figure 2)

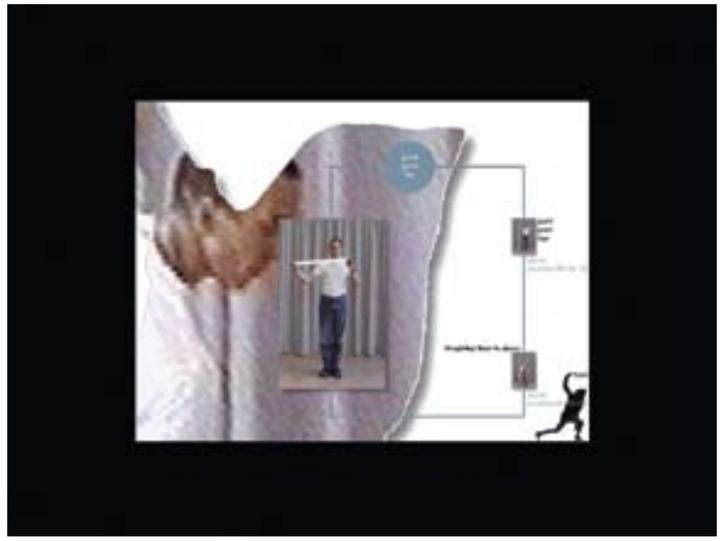


Figure 1: *Loss of Small Detail*, screenshot, graphic overlays on lecture.

For the design of the combined archive/teaching tool for *Loss of Small Detail*, which carried over into *Self Meant to Govern*, we proposed a cross-linked archive of theory (lectures) and practice (rehearsal, performances). The specific needs of the rehearsal context made it necessary to have fast access to the information; hence the material was broken down into short lectures and samples from rehearsals and performances. The navigation was always available as a list of the short lecture titles at the right side of the screen, arranged in chapters (Figure 3). The videos played in the center of the screen, and single letters in the corners, gave access to different levels of information linked to the lecture. For each chapter there was T - for theory, E - example, R - rehearsal, P - performance.

Finally, these projects resulted in the creation of a CD-ROM for public release in 1999 with the title *William Forsythe: Improvisation Technologies, A Tool for the Analytical Dance Eye*. This 'tool' was a more general description of Forsythe's movement principles. It was no longer documenting the development process of a choreography, and there was no rehearsal or performance material. The R - rehearsal and P - performance were taken out leaving only T – theory and E – examples (dancers demonstrating the lectures in the studio with additional graphics). (Figure 4) The CD-ROM also includes a solo of Forsythe performing an improvisation using as many of these principles as possible. The CD-ROM doesn't introduce the viewer to Forsythe's creation process (something often misunderstood by those who use it), only how to understand dancing as a multi-layered language re-organizing an architecture of space and time.

Significantly, the design of the interface, in particular around the lectures, was the result of a long conversation and collaboration with Nik Haffner, a performer with the company who was able to explain the process of learning and performing. With my background in Architecture, Design and Media Art and Haffner's in dance and some film work, we made a strong interdisciplinary team. Up until these series of projects, documenting and archiving dance was largely done at the point of performance, but with *Improvisation Technologies* a part of the process that may be used in creation is captured and shown by one body and demonstrated in others. For dancers and dance scholars this becomes an important new way of accessing dance information. *Improvisation Technologies* also borrows space and time concepts from other disciplines like architecture, film and philosophy; it then

Figure 2: *Self Meant to Govern,* screenshot, multi-angle camera interface.

Figure 3: *Self Meant to Govern*, screenshot, navigation list.

Figure 4: *Improvisation Technologies*, screenshot, studio demonstration.

reveals itself to be a language for relating these other fields to the conditions of a physical performance on the stage.[6]

**Designing tradition: ancient pine trees and 3D hyperlink interfaces**

Soon after its publication, the *Improvisation Technologies* CD-ROM was selling very successfully in Japan and Tokyo Media Connections, known for its documentaries about Noh and Kyogen Theater, asked ZKM to design a CD-ROM like *Improvisation Technologies* about Kyogen. The aim was to bring Kyogen closer to the next generation, which was seen to be losing its connection to performing arts traditions resulting in a lack of attendance at performances.

Kyogen is a Japanese theater art form that has not changed for 500 years. It is traditionally performed as twenty minutes long comedy plays in between sections of the longer, more serious, Noh Theater. All together, this could comprise a full day and night of drama, dance and comedy. Approximately 120 Kyogen plays were created in the 16th century, but since then these texts have not changed and no new plays have been written. The art of learning and performing the comedy plays has been passed down from one generation to the next.

There could not be a starker contrast with the *Improvisation Technologies* project. It was difficult to fully grasp the differences between the Japanese and European traditions in the time we had for the project, but I needed to learn enough to come up with an appropriate design for the interactive interface and information structures for *That's Kyogen!* (the title of the DVD-ROM).

Mansaku, the son of one of the most famous Kyogen players of Japan, gave us an interview in which he described his life-long training in the tradition of Kyogen. This training has no parallel in the relatively short term of Western training in acting techniques. It is almost evolutionary in nature, as only at a certain age one is able to play a particular role. For example: the 'mushroom' characters in one Kyogen play are often played by children; whereas another character, the 'fox', performed in a fur costume covering the whole body, needs the physical strength of a young adult actor; and many of the more humorous characters require subtle qualities and a layer of seriousness that is best achieved by actors of an older age. Learning skills per se is not the most important part of training to play a character on the Kyogen stage. Training is also evolutionary in the sense that the Kyogen actor repeats one role many times and through this routine evolves or develops his capacities from one level to the next. This is how life-long training enables an actor to transform slowly into new characters over time, which may be one of the reasons that the two families in Tokyo teaching Kyogen are only doing so inside their families.

Through research I eventually discovered an appropriate visual metaphor for the general design drawn from the painting of the ancient pine tree that stands at the back of the Kyogen stage. The pine tree is symbolic in Japanese Noh Theater. Not only is it the site for divine creation, as the place where the gods descend to earth from heaven, but Noh was traditionally played on outside stages in front of these old pine trees. The pine tree became my visual metaphor for the design, which became a three-dimensional tree-like interface layout. The branches were 'characters' which are linked to 'acting' and these chapters were also linked to 'plays'. (Figures 5, 6, 7)

The links are relational, in other words, in the 'plays' section the user can also find all the 'characters' of that play as well as access an 'explanations' section just by switching branches. In addition to this tree design, the interface offers an evolving set of information links beside the display window. So, when watching the performance in the 'plays' chapter, for example, different links appear when new characters appear on stage. This emphasizes the temporal dimension of the performance and makes the connection to one of Kyogen's defining characteristics; that it is knowledge of acting that can only be achieved through a lifetime of training and performing.[7]

**Another journey in time: rhythm and eye movements**

In the summer of 2000, during a research lab at Arizona State University's Institute for Studies in the Arts, I gave a presentation of the *Improvisation Technologies* CD-ROM. Participating in the lab was Indian choreographer Jayachandran Palazhy who was establishing a movement research center in Bangalore called *Attakkalari: centre for movement arts*, where he hoped to initiate projects involving dance and new media technologies.[8] Soon after, in 2001, Palazhy and I collaborated on my first stage work *scanned*, and we continued to work together on an interactive multimedia dance documentation project titled *Nagarika:*

Figure 5: *That's Kyogen!,* screenshot, character branches.

Figure 6: *That's Kyogen!*, screenshot, character branches to acting.

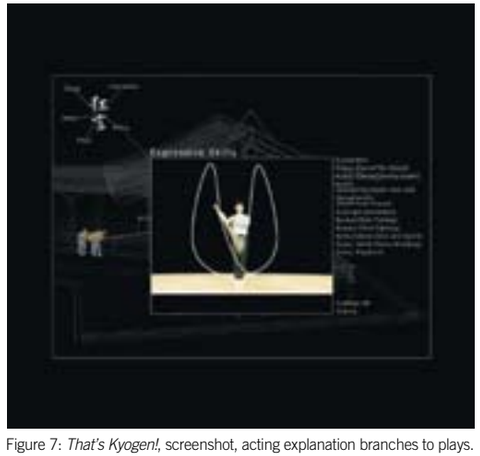


Figure 7: *That's Kyogen!,* screenshot, acting explanation branches to plays.

*an Integrated Information System on Indian Physical Traditions*.

The aim of the *Nagarika* project, now established as part of the Attakkalari media activities related to dance documentation, is to develop a series of DVD-ROMs based on traditional Indian dance techniques. The first of these series, inspired by both the *Improvisation Technologies* CD-ROM and the *That's Kyogen!* DVD-ROM, received support from the Daniel Langlois Foundation (for digital archiving projects), the Goethe Institute and a Japanese art foundation. With this, Palazhy formed a small interactive media design and development team to work on the project including Matsuo Kunihiko, a Japanese media artist, and myself.

The first in the *Nagarika* series, *Volume One*, was dedicated to the traditional Bharatanatyam dance. As with the Kyogen project, I needed to research Bharatanatyam – its traditions as a performing art and how it was transmitted from teacher to student. Indian dance training has a strongly oral dimension to it, and it was decided that the core of *Nagarika* should be lessons given by several teachers; some of the teachers are over sixty years old and Palazhy was at one time their student. On the DVD-ROM, six teachers give introductions to movement, time, rhythm and music; this involves detailed explanations and performance excerpts by the teachers themselves or by one of their students.

One could say that William Forsythe and the Ballett Frankfurt had established their own modest oral tradition as manifest in the collection of short lectures on the *Improvisation Technologies* CD-ROM. And the interface designed for the *Nagarika* Bharatanatyam DVD-ROM was not much different from the basic layout of the Forsythe CD-ROM. Lectures (explanation) are linked to excerpts of movement sequences (Adavu) or longer parts of choreography (Korvai). (Figure 8) There is an additional context chapter, to give space for longer explanations, that branches out to other fields related to movement, time and space. (Figure 9) This is where the similarity with *Improvisation Technologies* ends.

As mentioned earlier, the Bharatanatyam training is already very verbal; but there is also a high density of expressive communication involving the face, eyes and head movement and many other expressive gestures with the rest of the body. Originally, we were discussing the possibility of adding graphics to the video as with the *Improvisation Technologies* lectures. For example, the dance establishes space and time by a simple eye movement (as in looking from left to right) followed by an arm movement. We thought at first to emphasize some of these clear ideas by layering animated graphics on top. But Palazhy explained that the most important base of Indian traditional dance lies in the rhythm. And this rhythm, in traditional Indian dance, lies in between singing and body movement and involves different time scales. Therefore, it is necessary to 'sing' the beats, and to support the singing, the teachers use hand and finger clapping in numerous ways to help them recall very complex temporal structures that they have memorized. This makes metric counting almost impossible.

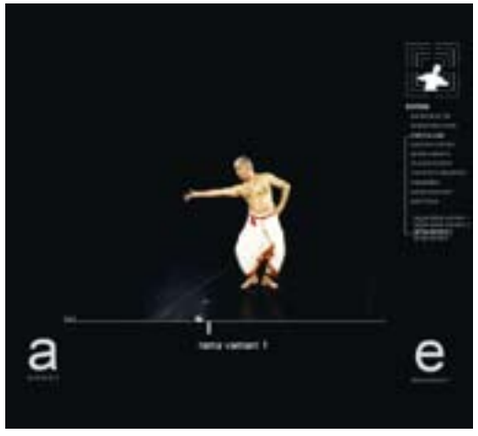



Figure 8: *Nagarika*, screenshot, Korvai choreography..

Figure 9: *Nagarika*, screenshot, context chapter.



Still exploring the idea of adding graphics, we thought of depicting the different time scales by having watches running with different hands; but this addition of graphic information offered no improvement on the video of the teacher explaining and demonstrating. So in the end we decided to simply leave the teaching alone – as closely as possible representing a live teaching situation. The lessons, even on the video, are highly multi-dimensionally expressive as well as clear and precise. The dancers use the movement of the body to establish time and with expressive gestures establish the space – the stage in front of the eyes of the audience – through a joyful mix of talking, moving and singing. In *Improvisation Technologies* we used graphics on top of video lectures as a tool to follow the construction of an increasingly complex mental architecture through dance. *Nagarika* has no such specific development pathway; it is more a collection of stations along a journey in space-time.

**Double Skin/Double Mind: a workshop installation as theatre**

In early 2006, I was invited by Bertha Bermúdez to participate in the *Notation Research Project* with my experience, not only as a designer of interactive multimedia projects for dance archiving, education and documentation, but also based on my more recent work as a theater artist mixing live performance and real-time stage technologies. Bermúdez' invitation seemed to suggest a way for me to bring these two strands of my research and work together – to mix multimedia and real-time stage technologies. My thesis for the project would be that: "extending the multimedia information on the screen into the 'theater' space and using real-time stage technologies, might help improve the transmission of the dance information and further the aims of the dance research".

The project quickly evolved, to include both an Installation and a DVD-ROM. The basic material would be the *Double Skin/Double Mind* (*DS/DM*) workshop Emio Greco and Pieter C. Scholten had been developing for several years. In the Summer of 2005, the *DS/DM* workshop had been filmed for the making of a documentary about it. This meant that its structure had already been analyzed. Here Bermúdez was filling the same role that Nik Haffner had played with the *Improvisation Technologies* project: like Haffner she had not invented the systems of training/teaching or preparation, but she was the main one to shape it into 'user and design friendly' chapters; naming and editing the information structure.

In contrast to *Improvisation Technologies* (mental architectures for real-time choreography), *That's Kyogen!* (complex relations between characters, plays and acting) and *Nagarika* (multidimensional gestural expression of rhythms), the *DS/DM* Installation/DVD-ROM aims to provide access to the self-awareness preparation of the dancer for the creation and performance process. And part of the challenge of this project as compared to the other three was the task Bermúdez approached me with: "How can we depict the intention and inner quality of the movement? Lets try to describe the indescribable".

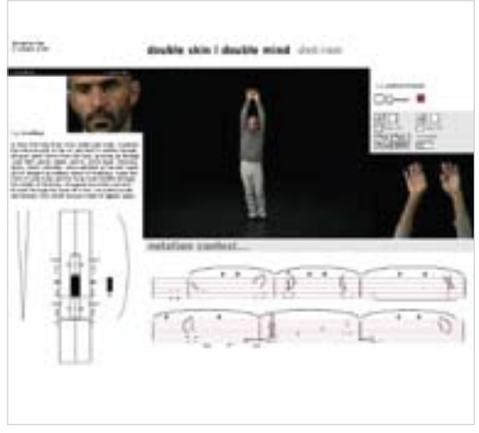



Figure 10: Layout Patchwork of fields, screenshot.

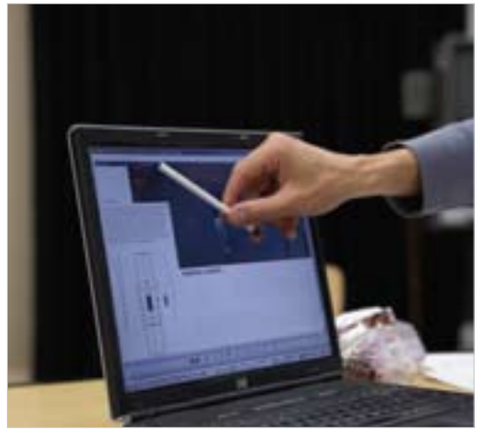


Figure 11: Photo from design session.

Figure 12: *DS/DM* Installation set up Amsterdam School of the Arts, June 2007. Participant/ Performer: Bertha Bermudez.

An interface design involving layers of hyper-linked information didn't suit the needs of this project, and it had to be something more than just an archive. I felt I could better approach the design challenge, to grasp the 'soft skills' of dance, through the creation of a toolset; a collection of lectures, graphics, text information and custom made software such as the *gesture follower*, developed by Frédéric Bevilacqua at IRCAM in Paris. This software is designed to give real-time feedback in the form of suggestions about performed movement qualities.[9] There are two platforms for the toolset. One is the DVD-ROM, which I have designed by dividing the space of the screen into a patchwork of fields. (Figures 10, 11)This supports access to all the information areas or fields (video lectures, notation information, related text, the *gesture follower*) on one level. Mouse 'rollovers' preselect most interface actions; e.g. watch videos, navigate, scroll images, etc.

Figure 13: Installation set up Amsterdam School of the Arts.

The other platform for the toolset is the *DS/DM* Installation. Similar to the preparations for the *Improvisation Technologies* and *Nagarika* projects, we filmed Emio Greco giving step-by-step training sessions for some of the sections of the *DS/DM* workshop. His image is projected life-size on a screen inside an installation space (a metal frame from which the screen and four speakers are hung) surrounding the participant. This creates the feeling of having a 'personal one on one workshop' with Greco.[10] An infrared camera watches the movements of the participant, and sounds change pitch and levels in real-time according to a computer-based analysis of these movements. We are also working on ways to depict this feedback visually. In summary, the *DS/DM* Installation/DVD-ROM is designed as a visual and acoustic toolset to improve movement awareness in a new media environment.

The Installation has been set up and tested so far at the Netherlands Institute for Media Art, Montevideo/ Time Based Arts in March 2007 and in late June 2007 at the Amsterdam School of the Arts. Here we invited participants and other guests to discuss how to best develop the feedback system of the installation. This has had intriguing results we did not anticipate. By creating a theater-like situation of many people watching a single performer moving inside the installation, we found out that the visual information display of the *gesture follower* feedback seems more important to the audience than to the participant moving inside the installation. An exchange process between the mover inside the installation and the audience watching it needs to be established. The audience thus participates on a more cognitive, empathic level, whereas the active user is involved on a physical, intuitive level; and all these levels meet in a reflection of experiences while watching/interacting/participating in the *DS/DM* Installation.

All URLs accessed on 31.07.07

1 The *ARTINTACT* CD-ROM series was dedicated to art projects, specially developed for CD-ROM and its interactive possibilities.

2 Ballett Frankfurt was discontinued in 2004. William Forsythe started The Forsythe Company in January 2005. www.theforsythecompany.de

3 For more information about these projects and details regarding the chronology of developments leading to the public release of the *Improvisation Technologies* CD-ROM see the booklet that accompanies the CD-ROM.

4 *Loss of Small Detail* went through several major versions since the 1991 premiere.

5 *Self Meant to Govern* was only performed a few times, and now it comprises the first part of *Eidos Telos* in the present repertory of the company.

6 Forsythe is involved with a new project to create an On Line Interactive Score from *One Flat Thing, reproduced*. In contrast to the *Improvisation Technologies* CD-ROM this project takes a finished work as its starting point.

7 *That's Kyogen!* is only available for educational institutions, libraries, universities etc. It is advertised as a very exclusive, also quite expensive series of DVD-videos and one DVD-ROM for educational purposes. After almost one year of production, the Japanese publisher Katagawa decided not to publish the title outside Japan.

8 Website of the Attakkalari Centre: www.attakkalari.org.

9 See: Frédéric Bevilacqua's *Momentary notes on capturing gestures* (published in this book) p. 26.

10 This was confirmed with user/participants at the June 2007 try out; sample comment: "I feel like someone is standing there".

**Eliane Mirzabekiantz** conducts the Benesh Movement Notation course at the Conservatoire de Paris. In 1990, after having danced in major ballet companies for many years, she graduated from the Benesh Institute as a choréologue. Engaged by Robert North, she notated all his creations for the Göteborg Ballet and staged several of his ballets for European companies. In 1995 she set up the Professional Benesh course at the Conservatoire de Paris. In 1999 The Benesh Institute awarded her 'Fellow of the Institute' in recognition of her achievements in France. She is the author of *Grammaire de la notation Benesh* published by the Centre national de la danse in 2000. In 2006 she co-founded Le Centre Benesh, association for the development of notation in France. www.centrebenesh.fr – www.notation.free.fr

# Notation-in-movement

**Eliane Mirzabekiantz**' involvement in the work of Emio Greco | PC came from meeting Bertha Bermúdez, dancer in the company since 1998 who had stopped performing to focus on the documentation and transmission of their creative work. In April 2005, Bermúdez invited her to a rehearsal at the Conservatoire de Paris where Mirzabekiantz conducts the Professional Benesh Course.[1] Her way of demonstrating, teaching and passing Greco and Scholten's work on to the young dancers simply inspired Mirzabekiantz to notate it. In the following essay, Mirzabekiantz provides insight into this original motivation by responding to several comments and questions from Bermúdez.

"Notation is fundamentally a tool for communication. Notating a choreography, no matter what, is always a challenge. Notating the process instead of finished artworks – the request to fulfil as a part of this research project – goes beyond that". (Eliane Mirzabekiantz)

---

*In EG | PC's work you have to know the path of the movement to understand it and make it yours. It is not about the form of the movement but about the purpose of it. So here is the main concern: could an existing notation system be suitable to describe EG | PC's approach to movement ?*
From my experience, I would recommend that you consider both Benesh and Laban to start with. Both systems were invented to record human movement – the application to dance happened to be a part of this. Both systems are used in different fields for different purposes and have contributed to a large library of scores. Both are formally taught and professional notators are qualified regularly. Last but not least, both Benesh and Laban are in continuous development at the Benesh Institute and through international organisations, such as the International Council of Kinetography Laban/Labanotation.

*From what I read, it seems that Benesh Movement Notation (BMN) was made to notate classical ballet. So it is hard to believe that this system could record EG | PC's work as well.*
This ballet connotation for Benesh is very reductive. It is just a short and quick conclusion because the system was immediately adopted by The Royal Ballet in London and spread out since then amongst major repertory companies around the world. It is just a lack of information. If the ballet connotation were true, BMN would not still be on the map in 2007.

*Well tell me about it.*
It is important for you to understand which concept of movement is supported by the system, which kind of tool the Benesh notator has at hand to respond to a specific project, what is involved and where the skill of the notator lies…

For the concept of movement, I'll refer to Rudolf Benesh:

> "In devising the system, I looked upon it as a pure movement notation with no consideration other than it had to cover every possible movement of a human being. (…) Also since we are dealing with a visual art, it had to be based upon what is actually seen, just as our spoken language requires a phonetic notation and music an oral one." [2]

Rudolf Benesh was inspired by the chronophotography of Etienne-Jules Marey. He retained the idea of describing the movement as a succession of key frames and simple movement lines are drawn to show the path of the movement. (Figure 1)

Figure 1: Key frames and path of movement.

Referring to Leonardo da Vinci's *Vitruvian Man*, Benesh traces five horizontal lines over the human figure. (Figure 2) The schema of the body can now be recognized with a minimum of signs. In the example here, there is one common sign for the extremities (the small horizontal signs indicate each hand and each foot in the frontal plane) and the curved movement line indicates how to lift both arms to shoulder height. (Figure 3) [3]

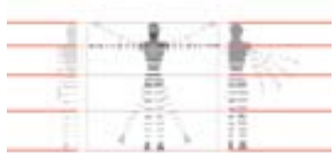


Figure 2: Referring to Leonardo Da Vinci.

Figure 3: Is figure 1 notated in Benesh.

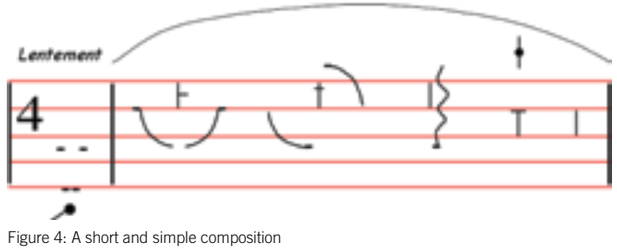



Figure 4: A short and simple composition

Figure 5: Stave's organization.

You read the movements from left to right. (Figure 4) Each frame is achieved on a regular pulse beat unless stated otherwise. In which case, signs for rhythm and dynamics are placed directly above the frame. Orientation and any spatial information are registered under the stave. (Figure 5) This organisation of the stave contributes to the recognition of the continuity of the human action both in time and space.

*What I understand is that you are drawing figures in movement in connection with time and space.*
At this point of our conversation I would say yes. But this is just the fundamentals of the system. As Benesh wrote, "On completing our notation, all we had done was to have completed the alphabet. There was still the spelling and syntax and the equivalent of grammar to be learned and work out for each application."[4] This leads us towards Benesh Movement Notation as a language of movement.

*What do you mean?*
It is difficult to explain. Benesh puts it this way: "It was not a matter of recording what one saw, but also learning that each style of dance, like each language, has its own conventions and particular emphasis on what is important".[5]

The system works so that the notation reflects prerogatives and specifics appropriate for every language of movement. Let us take two examples from your rehearsal.

**Example 1: Lifting the right arm up**

Figure 6

Figure 7

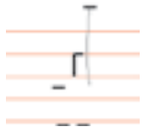



Figure 8

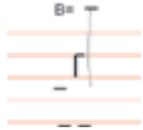



Figure 9

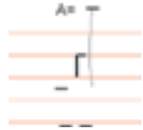



Figure 10

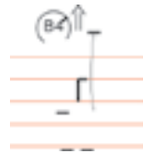



Figure 11

– Are you looking for a vertical line? (Figure 6)
– Are you reaching up? (Figure 7: the arrow above the stave emphasizes it)
– Do you insist on a physical action of the shoulder lifting up? (Figure 8)
– The shoulder, then the arm? (Figure 9, B= means the Body guides the movement)
– Or rather the arm, then the shoulder? (Figure 10, B is replaced by A for Arm)

And now after all our exchange in studio in December 2006 in Paris, I think I would go further and communicate that the movement comes from the shoulder blade stretching it up (Figure 11).

**Example 2: Breathing**

In the variation you were teaching at the Conservatoire, I got particularly intrigued by one settled movement in the sternum area. So I drew different propositions:
– Avoiding any physical action but emphasizing the breathing action? (Figure 12)
– Considering only the slight physical action of the sternum going up and down? (Figure 13)
– Both together? (Figure 14)

Observing and hearing how you guided the dancer in the workshop to reach such a concentrated approach to the movement, my first instinct told me that the notation should be as fine as the movement. But then, as a notator, one always needs to have in mind how it will be read in return. Will the point I want to communicate be easily and accurately understood?

Here we were just dealing with a very small sample of movement just to make you understand what kind of tool the Benesh notator has to use. You also have to take the length of the work into consideration: the overall context tells you a lot and sometimes the notator just needs to let the flow of the movement speak for itself. Another quote from Benesh helps to explain this; "Notation is not something that you can learn in the abstract. The basic alphabet can be learned quite easily; what takes long training is the accurate analysis of movements to be written down and the use of the most economic and simple *spelling* for them".[6]

*This requires that the notator has to possess a deep comprehension of the essential elements of the dance movement.*

Absolutely. It also implies, from my point of view, the presence of the notator while the choreographer is in creation or, if not, when the piece is taught. It is essential that the notator, just like the dancer, has a real affinity with the movement approach the choreographer is developing. And I would take it further: as most choreographers can not read notation, they must have a real trust in the notator's skill to communicate their choreography, just as they would trust the dancer to perform their work on stage. In fact, the careers of major dance company notators reveal they have a close partnership with one or two choreographers at the most.

Figure 12

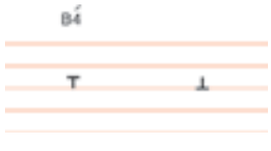



Figure 13

Figure 14



"Teaching EG | PC's work, I am just trying to explain the importance of the purpose of the movement, trying to make the students understand the need for analysis in dance and to make clear in the short time I had that they could understand the essential information of this performance. It is not enough to just copy the movement , but they should really understand why it is happening. This is what I believe". (Bertha Bermúdez)

That is how I got involved in attempting to document and notate the work of EG | PC. Happily I am not alone in this, but am working with my colleague and expert in the Laban notation system Marion Bastien. We have had many opportunities for exchange since we worked together at the Conservatoire de Paris.[7]

In addition, I wanted to share this opportunity with some of the Benesh notators who had recently graduated from the Conservatoire de Paris. Three of them were engaged in other projects, so only Romain Panassié joined us at the time of the first *Accademia Mobile* in Paris.[8]

As both a dancer and a notator, Romain Panassié chose to take part in the workshop and he also notated the phrase material after he learned it. On his first draft, you'll notice that he reproduced the comment from Bertha Bermúdez, giving the sense of the movement: words are also a tool for communication. (Figure 15)

For my part, I notated and collected as much information as possible while Bertha Bermúdez was teaching. Remembering my experience as a company notator (I notated Robert North's major work on a daily basis for five years), I know how essential it is for me to capture as much as possible in the studio, when the choreographer or the repetitor is working with the dancers.

Now the time has come to gather all the material together into a clear proposal for the notation writing. What I retain most from the workshop is the length of time, the progression, the accumulation of information. I will follow my rough notes on the workshop sequence so that the dancer who reads it gets the overall feeling of a warm-up session, or at least some parts of it. This will be based on my observation of Bertha Bermúdez guiding the dancer progressively through the movements. I will quote some of the verbal indications that she provides the dancer with just below the related stave, a common technique for us. The sense of accumulation will be proposed throughout different levels of analysis, so that the reader can explore them and will be able to comment in return (Figure 16).

We are making progress in our research into notating the workshop of EG | PC. However, as Marion Bastien put it very nicely in her essay elsewhere in this book, we are still clearly in the laboratory stage.

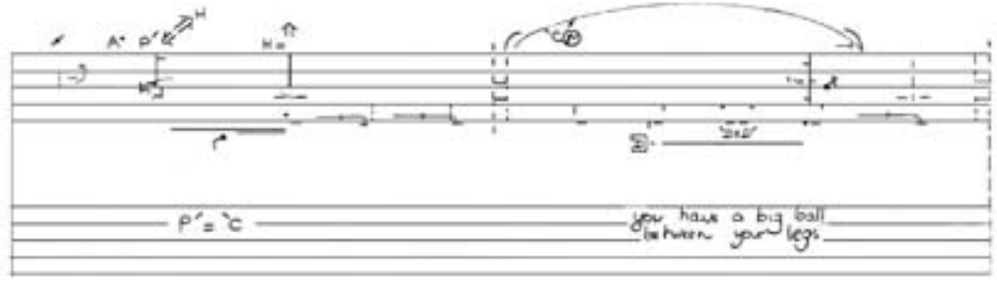
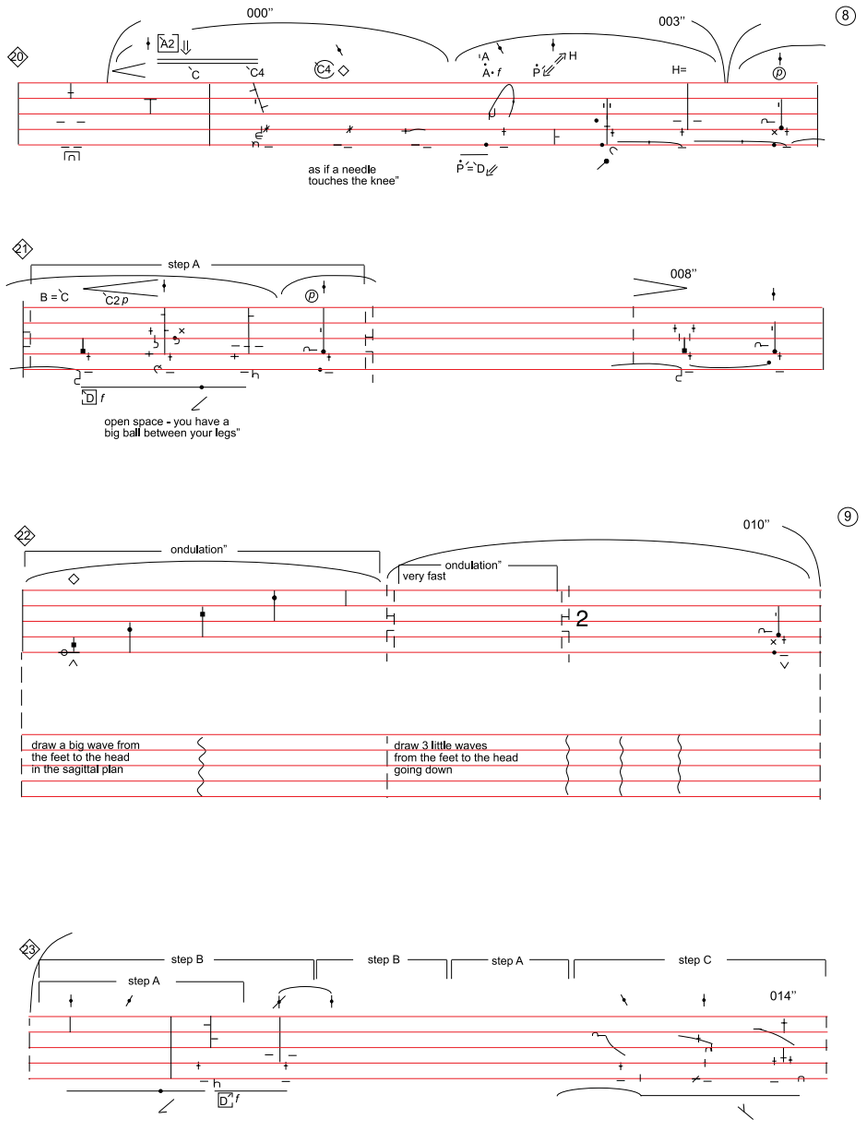



Figure 15

Figure 16. Eliane Mirzabekiantz' proposal for the workshop notation.




1 The Conservatoire national supérieur de musique et de danse de Paris invited Bertha Bermúdez to teach her variation of *DS/DM* to two dancers for their diplomas.

2 *An Introduction to Benesh Movement Notation*, Rudolf & Joan Benesh, London: AC Black, 1956. p 4.

3 Two more signs, a vertical small line and a black dot, distinguish movement in the sagital plane: a simple way to reproduce the three dimensions of the movement on paper. See Grammaire de la notation Benesh, Eliane Mirzabekiantz, Centre National de la Danse, 2000

4 *An Introduction to Benesh Movement Notation*, Rudolf & Joan Benesh, London: AC Black, 1956. p. 6.

5 Ibid. p. 7.

6 *Notating Indian dance*, Rudolf Benesh with Joan Benesh and Marianne Balchin, London: Dance Horizons, 1956. p 9.

7 Our main collaboration came from Marion Bastien's initiative to realize the first joint Laban-Benesh website: notation.free.fr.

8 See Marion Bastien's essay in this book for an explanation of how we approached the workshop

**Marion Bastien** graduated from Dance Notation Bureau. She has notated works (Georges Appaix, Dominique Bagouet, Bounonville), has taught notation at the Conservatoire de Paris, Université Paris VII and Paris X, and has restaged solos and choral works. Member of the European Seminar for Kinetography (1985-1994), Fellow of the International Council of Kinetography Laban/Labanotation since 1995. For this organization she was/is involved as Secretary (1996-2001) and Chair (2005-2007). notation.free.fr

# Notation-in-progress

The first contact between Bertha Bermúdez and **Marion Bastien** took place in early 2006. Step by step, meeting after meeting, discussion after discussion, a tentative documentation project came into shape. In the following contribution to this publication, Bastien draws from two presentations she made during the project: one from the Cinedans symposium in early July 2006 before she started the practical notation work and one during the middle of that process in March 2007.

**Presentation #1**
(July 2006 Cinedebate: Interdisciplinary Encounters #1)
It has been a tendecy since the invention of both systems, the Benesh notation as described by Eliane Mirzabekiantz, and the Laban notation, the system I have trained with, to become more sophisticated and increasingly able to transcribe complex and fine movements.[1] Two score excerpts, across a time span of 65 years, will illustrate this evolution of the system.

*Score excerpt #1* (Figure 1) is one of the very first notated texts published in Schrifttanz, 1928. Note that there are only a few signs: some of the basic signs shaped as rectangles and already some signs indicating movements of smaller body parts. Hence the movements are a bit more complex than basic steps, arms and leg gestures.

In contrast, *score excerpt #2* (Figure 2) is an excerpt of a dance by Dominique Bagouet, which I notated in 1993. The sequence recorded is inspired by Tai Chi movements and there are many fine details, particularly in the arm movements. The notation is spreading out horizontally. There is almost an over-inflation of signs and of details recorded (which was appropriate for this sequence of movement and for the accuracy in details requested from the performers).

It is normal that the systems tend to become more and more refined. New ways of recording movements, such as video and motion capture, which are extremely efficient and document much more detail than we do, also push us towards extreme reaches of precision. However, I believe the greatest value of our systems is not necessarily how precise they could be (of course we need a certain level of precision), but the possibility they have to record more than one stratum of precision, to capture the movement in grids of different calibers.

Here are some verbal descriptions of a movement,

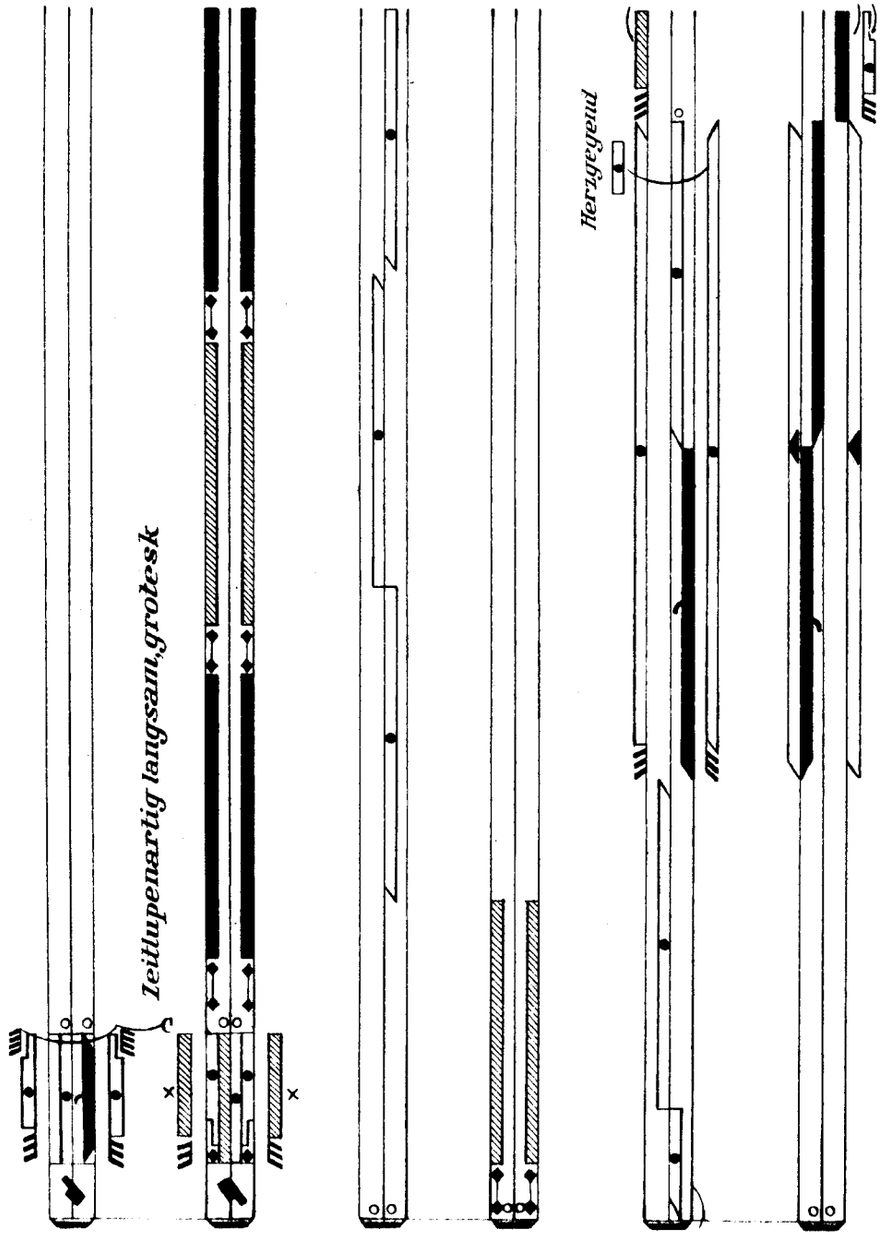



Figure 1. Score excerpt #1: Short dances with preliminary exercises. *Schrifttanz.* Vol. II. Universal Edition, Vienna. 1928.

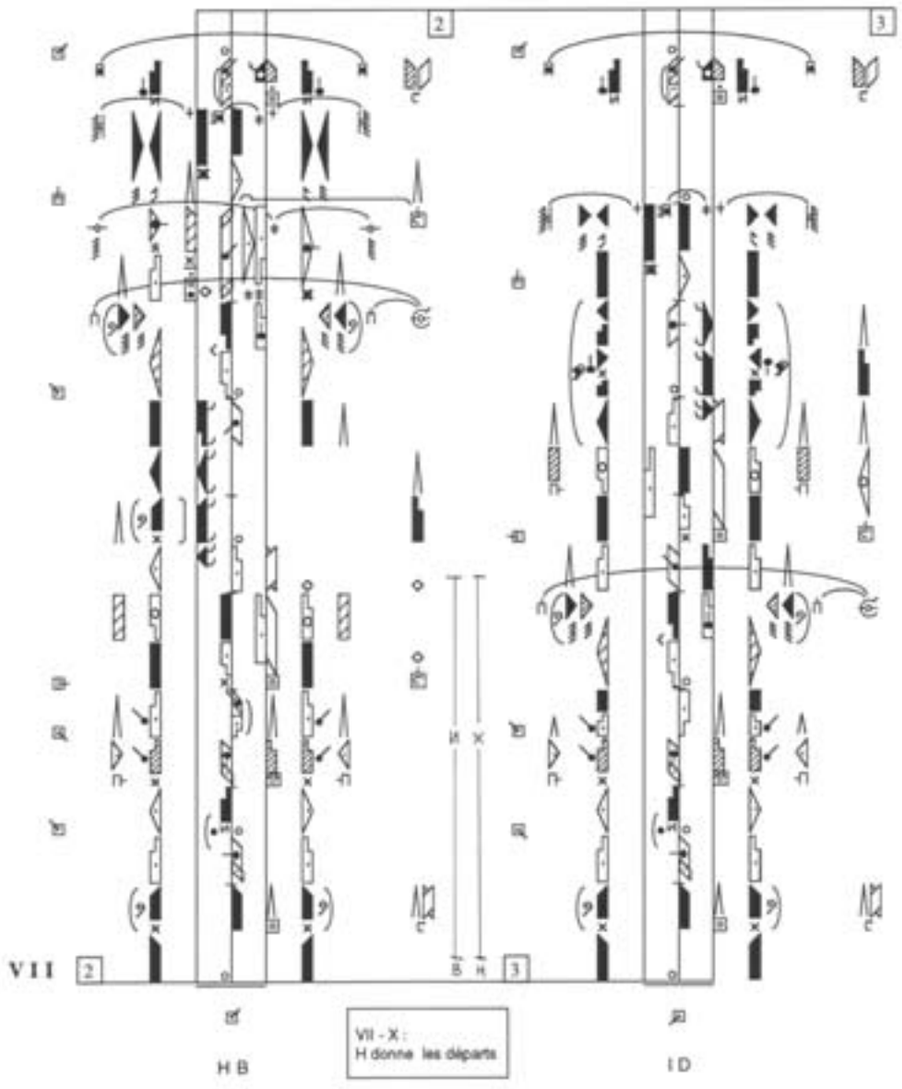



Figure 2. Score excerpt #2 : *Petites Pièces de Berlin* (*Nonette 2, Quatuor* and *Solo d'Olivia*), Dominique Bagouet, 1988 (restaged for Conservatoire de Paris and notated in 1993).



as it could be transcribed in a score (the example is deliberately simple):

– Step (as many steps as needed) to reach a point in space.
– Same thing, but step on the beat of the music.
– Do exactly 6 steps. The point will be reached or not.
– Do exactly 6 steps on 6 beats. Point will be reached or not.
– Take 6 beats to step. As many steps as you want, point will be reached or not.
– Do exactly 6 steps on 6 beats. Point must be reached. etc…

As a viewer you would see only one occurrence of this movement sequence. On the score one could write down one of the many possibilities of transcription, depending on the intent or the purpose of the sequence. A written recording in one of the other systems (Laban or Benesh) offers such a *plasticity* of analysis, and within a score one can fluctuate between those many levels.

When I was notating with some maturity (and the score excerpt of Bagouet shown before was of this range), I was often thinking that my expertise was not based on how many details I could write down in the score, but on what I was able to throw away. My greatest expertise was the ability to filter, to select.

With score excerpt #1 (Figure 1) we have one of the earliest scores of the 1920s, and here I would like to quote a text written in 1930 by dance director Fritz Klingenbeck. It is a short text, and I find it somehow 'premonitory'. I find it surprising how relevant it still is, bearing in mind that at the time the Laban system of notation was in its early stages of development, rather simple, and I don't think there was much feedback available on reading dances from the score (notation was frequently used then, but only within the limited context of early modern expressive dance).The text is entitled *What Should one Write Down and What not.*[2]

> "The dance notator must, along with a trained eye for the rapid perception of movement events, possess above all an understanding of the actual elements of the dance movement. In this consideration three factors stand out as particularly important, which the dance notator must be able to keep apart reliably. First, the actual composition, the naked, clear structure of the dance, second, the performance, the personal interpretation of the artist, and third, there are in most cases the factors determining style. It may not be entirely simple to draw the boundaries between these three factors, especially between the first two, the composition and the interpretation. (...)
>
> Thousands of small movements, phrasings, head, feet, are mainly idiosyncrasies of the performing artist, for whom it would be absurd to prescribe something else. Thus, there falls on the dance writer the same difficult and responsible task, namely to strip away all these secondary manifestations from his notation score and to leave them out of consideration. To recognise what must be written down, and what not, is not entirely easy, because the boundaries are always fluid and in most cases it is exactly the secondary manifestations belonging to the interpretation, which can make a dance interesting and valuable. Nevertheless, composition and interpretation must be clearly separated from each other by the dance notator, if another artist is to be able to recreate thereafter."

*Score excerpt #3* (Figure 3) is another example from the dance piece of Bagouet, but a solo section. While observing the solo being taught to a new performer, it appeared that beyond the actual movement, there was an underlying structure throughout the sequence that was more important than the specific gestures done by the original soloist. As long as the new performer fitted into those 'macro-patterns', it seemed to be fully satisfying as a reflection of the choreographer's intent. The most important part of the score, in this excerpt, are the indications on the right that one could read as follows: shrink gradually the shape of your gesture, shorten progressively your travel, accelerate – then back to normal pace – release – suspended pause.

This excerpt could be seen as a mixture of *descriptive* and *prescriptive* notation. Descriptive, because the specific steps and gestures done by the performer are recorded; prescriptive, because the underlying structure of dynamic indications, time acceleration and deceleration, narrowing and expanding shapes are also described, and the performer can change or adapt the stepping and gesturing sequence as long as the underlying structure remains. This is explained in a page accompanying the score and introducing the solo.

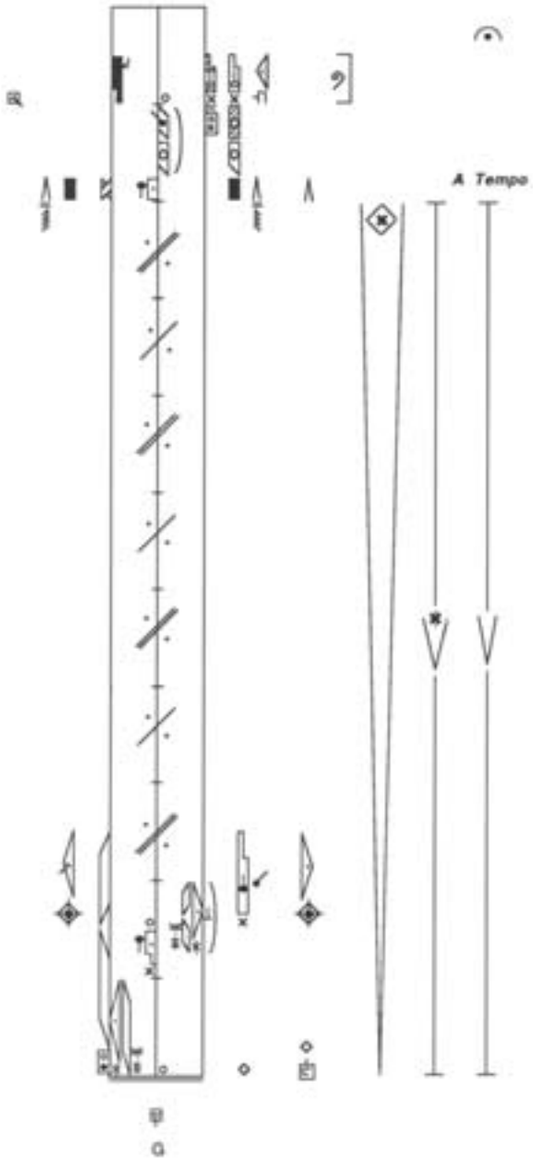



Figure 3. Score excerpt #3: *Petites Pièces de Berlin* (*Nonette 2, Solo d'Olivia*). Cf. Figure 2.

For the reader to understand how to apprehend a score, it is usual now to add word notes in the margin alongside specific moments, either as an introduction to the whole score or to a section. The score is somehow a 'manual' documenting the dance, which provides all the material necessary to reconstruct it piece by piece. But this manual, as sophisticated as it may be, might require another manual to provide the keys for how to read it.

The ability of the system(s) to record prescriptive and/or descriptive movements appears to be crucial for contemporary dance. Some choreographers are more interested in the process and are giving the performers instructions or tasks to solve. What should a notator document then? The question or the response? Or both? In recent years, some notators have had to devise very particular scores in order to adapt to this need.

An example of this is the score of *Artifact II* (choreographer William Forsythe), notated by Sandra Aberkalns in 1999-2000. In one interview I had with her she talked of her choices for the making of the score.[3] After a long time in gestation, she chose to use colours to pinpoint different levels of information: firstly, structured improvisations (tasks). Movement parameters are defined and the dancers are required to explore the movement possibilities within those parameters; secondly, choreography, which is consistent from cast to cast—a directive; thirdly, choreographic directives open to dancer choices. Sandra reports: "From my perspective the challenge was how to cue the stager visually when she is looking at a task, a choreographer's directive, or movement that is a directive but open to interpretation in ways other than what is written. Color was the solution". Alongside she also kept some audiovisual material on a CD-ROM, which added to the score.

We – a group of different people from different fields - are here together in the framework of a dance documentation research project. As a notator, I know a score can be used as a 'stand-alone' document, but I think that other ways of recording or capturing the movements are always welcome to understand a dance. The use of one media does not mean one has to be exclusive and leave aside other media, and one should intend to articulate multiple layers of documentation. But a score has its specificity and as a written transcription with all the *plasticity* as discussed earlier it is an invaluable tool.



**Presentation #2**
(March Lab 2007: Interdisciplinary Encounters #2)
Marion Bastien responds to questions about an approach to using the Laban system to notate the work of Emio Greco | PC.

*How do you begin notating?*
First I need time to immerse myself in the work, to apprehend well how I will notate it, how to proceed, choices of notation, methodologies of work, etc.

*How did you do this in the case of the Double Skin/Double Mind (DS/DM) workshop?*
In December 2006, Bertha Bermúdez gave a three-day *DS/DM* workshop in Paris for a group of about 15 to 20 dancers. That same week we had a chance to see the Paris premiere of *HELL*, which was a good occasion to put the training and creative work of the company into perspective by seeing one of their finished choreographic works on stage. And we also planned to have a second chance to see the material, with a second workshop organized in April 2007. In my personal working approach, it is essential that a notation process has its 'gestation' phase, time for thinking and maturation. It is part of the process.

*Can you describe your initial approach with the workshop?*
Observing the workshop it was obvious to me there were two distinct parts to document and that those could not be apprehended the same way. Firstly, there is the warm-up or preparation, and secondly the *transfer* or teaching of choreographic phrase(s) at the end of each workshop session. Although I watched the film documentary when we met in Amsterdam in July 2006, it was quite a discovery to see how the warm-up is conducted and how it is organized. It was clear that to document this material, not the movement material itself, but what I call the 'meta' structure, would be rather challenging. After a first meeting we had with Eliane Mirzabekiantz and Romain Panassié (a second Benesh notator involved in the project), we all decided to start with the choreographic phrase first. This is more 'standard' for us, not standard from the perspective of the movement itself, but more standard in how it is defined, what its time frame is, how it develops from one point to the other, its transitions, etc.

*How will you start notating the phrase?*
There are some practical steps I will follow. On the one hand I start with my rough notes, taken directly in rehearsal. (Figure 4) I have my memory of the movement from my own point of view and a video we made on the last day as a reference. I first need to build a temporal frame. This is one of the main features of the Laban system; basic signs carry in their shapes both spatial indications and time indications (including duration and when the movement occurs). This gives a very synthetic, very logical view once the notation is produced, but in the process of notating it can be un-helpful, because one may want to disconnect the path of the movement from its time – particularly so in contemporary dance where the time frame can be flexible.

Nevertheless, I will build a skeleton of the score with empty staves giving the approximate tempo identification, choice of a scale (how many squares of my paper for each unit/beat). Into those empty staves I will place the movement phrases, the sequences, the repetitions, to have some kind of a synopsis or a grid to follow. This groundwork will allow me to go on.

Then I will continue with what I call the *choices phase* when I work on little 'snippets' of the material, not necessarily in a linear way. Here I will identify the most recurrent – or typical movements, the ones 'emblematic' of what I will call the style, the ones that seem the most complex. I will figure out the best ways to notate those. For example: I am looking closely at (and am puzzled by) all the rotation of the arms that happens in an arm movement, and the same with the legs. I am watching the ways a movement develops in a sequential or successive order. Working from this, I hope to be led to make *notation choices* that would - should - be used then *as a guideline* to follow for the notation of similar material, both for the phrase and the workshop (warm-up or preparation).

Of course in this process, I may go back and forth. I may choose a solution that will prove to be a dead end, which will not work when applied to other 'similar' material. However, this can be an endlessly dynamic process and at one point I must stabilize and make choices to find an end. A notator can go on and on, always asking her or himself questions and making changes, but at some point one must produce a final score. One has to make some choices and take responsibility for them.

In the end, my notation choices may not be directly connected to the 'movement intentionality' (which

is one of the motivations for this overall research project) but I need to work within the notation system, the Laban rules and syntax, and I must make my choices within this frame. And in the end the set of signs must be coherent and readable. Then it will be up to the reader to de-code these and to comprehend the underlying structure, the underlying meaning and the movement flow.

*How did you approach and begin to notate the warm-up or preparation material?*
I do not know yet how to document the warm-up. It is not so much the 'material' in itself (although of course the material in itself will not be so easy to notate either), but the open structure, or meta-structure of the workshop that I am thinking about. For example, here are some of the components of this meta-structure:

– *Typical exercises* or components (*Jumping, Breathing, Expanding*), eventually combined (expanded breathing), and evolving.
– Arrangement of a series of those components, in a *sequence, that may vary*. Somewhat like a 'domino' game, based in a rhizomatic structure that can be connected, but the sequence is not predetermined.
– Rather than requesting dancers to imitate a specific movement, the leader or teacher asks them to try to assume some of the movements' essential dynamic features (instead of reproducing external shape or form).

So one step would be to identify these exercises and components, to determine basic potential features and how they evolve. Asking questions. Does it happen in a vertical space, in a horizontal space? How does it move (displace) in space, is it with an even phrasing or with impulses. Does the body twist or turn? The ways in which the sequence of arrangements may or may not be ordered should also be identified. Could the workshop start with *Jumping*, or should it always begin with *Breathing*? Could it start with *Expanding*? etc.

Eventually following this approach, I would see the notation more as samples, giving an illustration alongside a description of the workshop. In any case, the documentation of the workshop using Laban notation is very challenging, and certainly needs further thinking and investigation. We are still in the laboratory stage...

1 See the essay by Eliane Mirzabekiantz for an explanation of how a notation system can transcribe the 'finest details of a movement' p. 42.
2 'Was Aufschreiben und was nicht', Fritz Klingenbeck, *Schrifttanz*, Vol. III. November 1930. Translated in: 'What Should one Write Down and What not'. *Schrifttanz – A View of German Dance in the Weimar Republic*, edited by Valerie Preston-Dunlop & Susanne Lahusen, Dance Books, London, 1990.
3 Interview with Sandra Aberkalns: notation.free.fr/laban/contexte/entretien1_P_vo.html (English interview)



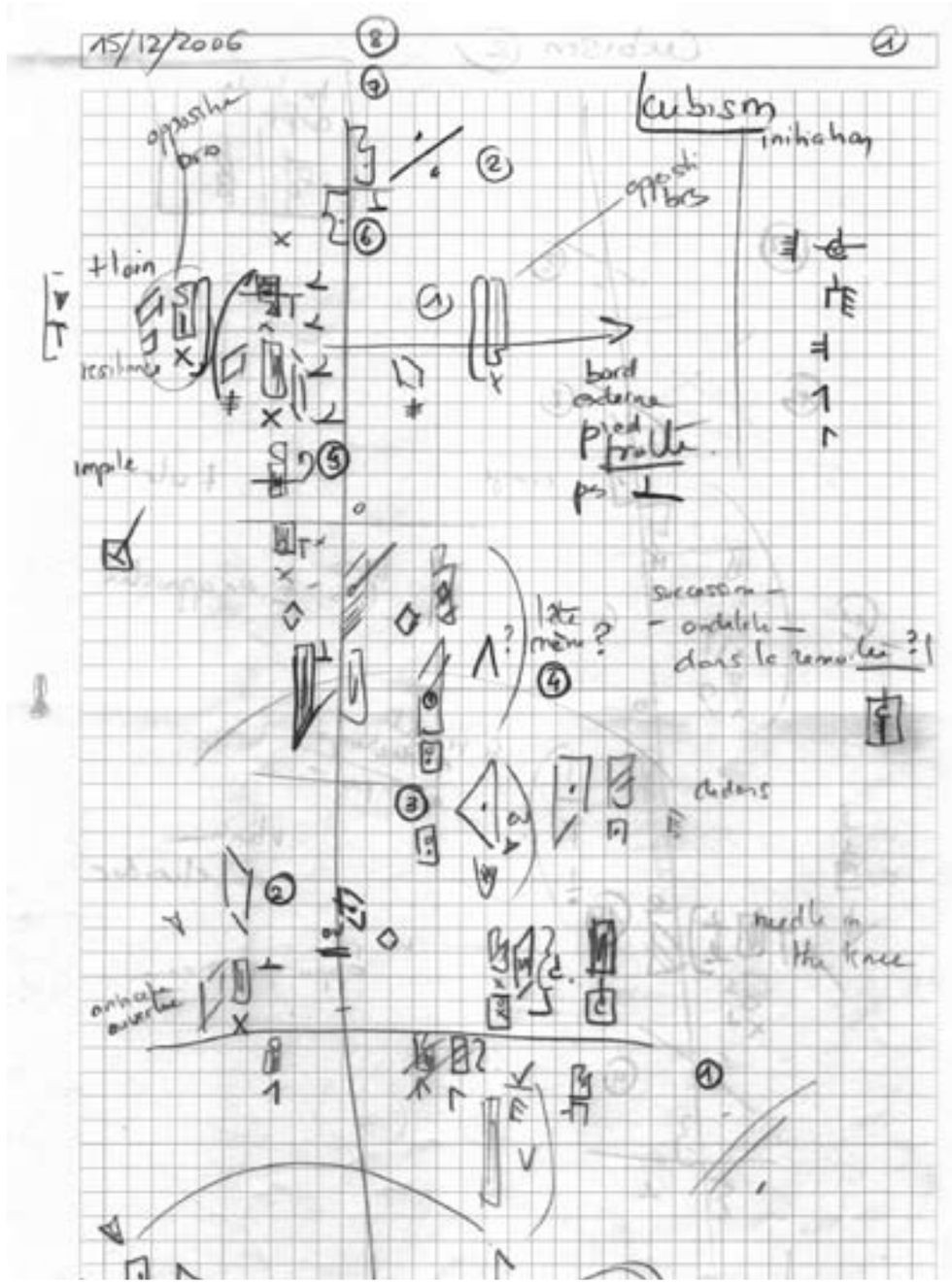
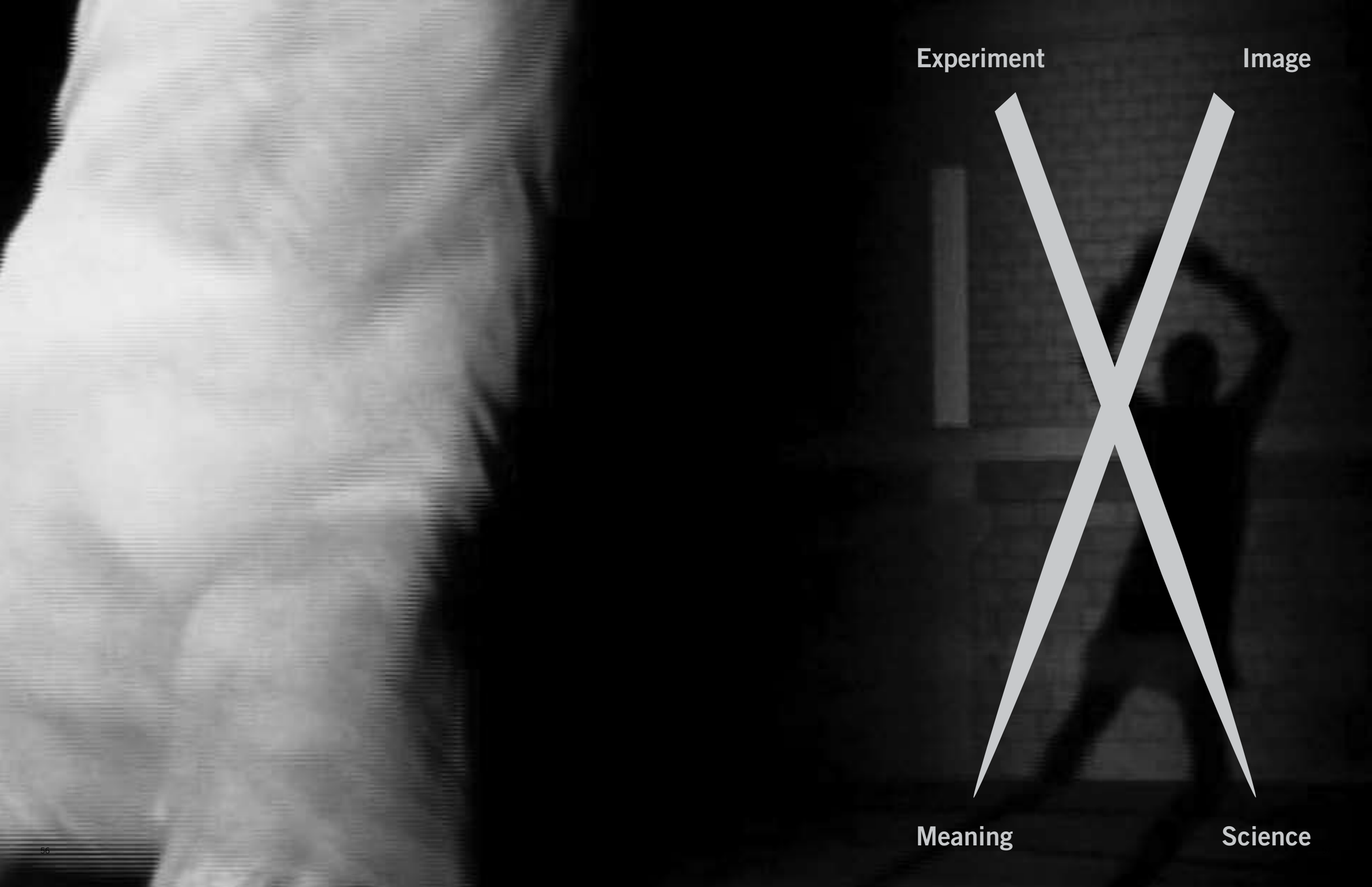



Figure 4 : Bastien's notes, taken during *DS/DM* workshop, December 15, 2006, Paris.


Experiment
Image
Meaning
Science

**Bertha Bermúdez Pascual** was Prix de Lausanne laureate in 1992. After her dance education in Pamplona she continued with professional studies at the Rudra Béjart Dance School in Lausanne and the John Cranko School in Stuttgart. Between 1993 and 1996 she was a member of the Frankfurt Ballet and then joined Compañia Nacional de Danza in Madrid. She has performed in productions by a.o. William Forsythe, Nacho Duato, Jirí Kylián, Ohad Naharin and Hans van Manen. Bermúdez Pascual joined Emio Greco | PC in 1998 and has performed in most of their works. In 2005 she stopped performing and started working for EG | PC transmitting their work and doing research around dance notation.

# Butoh-Kaden: a notation system for Butoh-Fu

As part of her yearlong research into dance notation systems in 2006/2007, **Bertha Bermúdez** mainly studied two that were developed in a European context: Laban and Benesh. In addition, she researched a notation system for Butoh called Butoh-Kaden. In this article, Bermúdez gives a brief description of Butoh-Kaden and explores its relevance for notating the work of Emio Greco | PC.

Butoh, a non-Western dance form, is based on unconscious improvised movements that are created from images and words. This makes Butoh-Kaden radically different from Laban and Benesh in both concept and format. The Butoh-Kaden system was created by Yukio Waguri, a Butoh choreographer and former dancer of the *Asbestos* dance group which was directed by the founder of Butoh: Tatsumi Hijikata (1928-1986). Waguri presents his system through a short publication and two DVD's.

In the late 1960s, Tatsumi Hijikata began developing a dance form that was highly choreographed, with stylized gestures drawn from childhood memories of his northern Japanese home. Hijikata was a master in the use of energy qualities when constructing expressive movement. He would use sounds, paintings, sculptures and words to construct movement, not exclusively in a formal or literally mimetic way, but by integrating these elements into the nervous system via visualization, in order to attain specific movement qualities.[1] Hijikata named his choreographic methodology *Butoh-Fu*, the meaning of the word 'fu' being *score*. In 1988, Yukio Waguri released some of the scores by Hijikata in the form of a CD-ROM called *BUTOH-FU passed down by Hijikata*. This later became the DVD version I had access to.[2]

The Butoh-Kaden system is based on images and words related to movements. During his years as a dancer in *Asbestos*, Yukio Waguri documented every word and image Hijikata transmitted during the creative processes. From a large selection of his notes, he defined a structure that was suitable for the transmission of Butoh-Fu. In the small publication that accompanies the DVD, Waguri explains that through years of work Hijikata had developed a specific process of transmission. This was partly due to non-dancers entering the dance group. For these non-dancers, images and words were used to awaken the imagination and to achieve the creation of the desired movement. It is this way of transmission through the use of words, sounds and images, that Waguri has captured in his notation system. In many instances, the images used are those that Hijikata himself had suggested.

Bearing in mind the different notation systems from both the West and the East, Waguri decided to present a system that could help the transmission of Butoh to dancers from different backgrounds and cultures. The name of the system is borrowed from one of the first Japanese notation systems: Fushi-Kaden, 'The Transmission of the Flower of Acting Style'. Here 'flower' means the flower of Noh. This system was developed by Zeami between 1400 and 1418, and represented the freshness and appropriateness of fine acting. Written as a manual for his pupils, Zeami used poetry and paintings to transfer the information of Noh.[3]

Butoh-Kaden is based on the idea that "physicality exists through acquired knowledge".[4] The images refer to form and the words refer to symbols. Words are important in the Butoh-Kaden system because they express matters that cannot be symbolized and they are the medium to expand physicality through the use of imagination. Waguri has structured eighty-eight Butoh-Fu (scores) that are connected to seven different worlds. These seven worlds have different qualities that are described through images, words, sounds, workshop experiences and performance demonstrations. A second DVD documents the choreographic work of Waguri and collects articles on Hijikata and the history of Butoh. It is clear that Butoh-Kaden is limited to the work done by Hijikata and does not serve definitions of other Butoh systems that emerged after him.

**Comparison with EG | PC:**
After having watched the DVD, it became clear to me that inside each Butoh-Fu the form of the movement was perceived as a container for its meaning (transferred with words and images) and that movement is a continual process of *becoming* that needs different mental states to be attained. To achieve the form, the proper mental state needs to be awakened and for this, the use of imagination is imperative.

In the past years people have compared the work of EG | PC with Butoh; many even thought that the work of EG | PC must be based on Butoh principles. After my research into Butoh-Fu, I understand how this comparison came about. Indeed, there are many thoughts behind the work of EG | PC that are similar to those of Butoh. Still there is an important difference.

As Don McLeod mentions in his article 'An Art Form In Transition':

> "Hijikata wanted to find a form of expression that allowed the body to 'speak' for itself through unconscious improvised movement. His first experiments were called Ankoku Butoh, or the Dance of Darkness. This darkness referred to the area of what was unknown to man, either within himself or in his surroundings. His Butoh sought to tap the long dormant genetic forces that lay hidden in the shrinking consciousness of modern man."[5]

EG | PC, too, want to let the body speak for itself and become the main source of dance creation. They speak of "a dance seen as the expression of a visionary body, with the theatrical space being the external influence on that body".[6] Like in Butoh-Fu the transmission of their work is done through words and images, but EG | PC always refer to the body itself; few images are used from sources other than the body. Other differences lie in performance elements like the choreographed material in the work of EG | PC as compared to the largely improvisatory approach of Butoh, and there are significant differences in the use of makeup and props.

The issues treated in the *Notation Research Project* that EG | PC initiated in 2004, deal with dance documentation, notation and their relation with movement intentionality - the inner motivation for the movement. It is around the very problematic question of how to notate *intentionality* that the Butoh-Fu system shares some principles and tools with this research project. Transcriptions of key phrases orally transmitted by Emio Greco during the workshops, the different music and sound elements that Pieter C. Scholten has linked with each part of the workshop structure, together with the orally described images that evoke a certain state of mind and open the imagination, all allow the intentionality of each part of the workshop to be described. These descriptions, however, will not be set down as the only truth but just offer possibilities; tools open to change and variation.

Thinking about *oral transmission*, I realized that the inherent reality of connotations, associations and analogies of words creates an important challenge.

EG | PC is currently facing this challenge through what they call *re-definition*. Words carry long histories and in the specific context of the transmission of dance they are often related to specific styles and ways of movement. For EG | PC the question arises of how to use these words while avoiding their codified meaning. The word *release*, for example, contains the association with a dance style of the 1970s. Many dancers will react to this term from this association, even though the context in which it is mentioned, like for instance the *Double Skin/Double Mind* workshop, calls for an entirely different interpretation of the same word. In short: the choice of words describing a certain technique will not necessarily help to understand what is desired, it may even impede understanding. This situation lays bare the need for a re-definition of terms, for new ways of using words and for additional explanations around it. In many cases, even, new words need to be discovered and appropriated by the choreographer in order to achieve the physicalization of the message he wants to transmit.

At the same time, the use of words defines the identity of the community involved in transmitting and creating a specific artwork. This happens through the capacity of human language to reshape the different personal interpretations of words according to their context. This communicative process contains the essence of a specific artistic creative process, because it is in the way the creator transmits his work that the essence of the idea is hidden. Because of this, the choice of words used to transmit a work becomes extremely relevant for both creator and interpreter. In Butoh-Fu, dancers need to relate to their own interpretations of images and words to create and understand movement. In EG | PC's work, dancers need to appropriate the work-specific words and images. Comparing these different ways of working I could say that the use of associative images and words in a descriptive way helps enormously in the transmission of dance, when this dance is based on intentions and energies that generate forms.

All URLs accessed on 08.06.07

1 en.wikipedia.org/wiki/Tatsumi_Hijikata
2 www.otsukimi.net/koz/e_bk_outline.html
3 www.britannica.com/eb/topic-309452/Fushi-kaden
4 Yukio Waguri & Kohzensha *Butoh Kaden*. (DVD-ROM) Tokyo: JUSTSYSTEM. 1998.
5 Don McLeod. 'An Art Form In Transition'. 2002. www.zenbutoh.com/history.htm
6 For this quote and others from Emio Greco | PC see: www.emiogrecopc.nl



**Images-Words for Double Skin/Double Mind:**

Following examples from Butoh-Fu where images and words to describe the seven worlds of Butoh are linked, I have envisioned the following four possible descriptions (images and words) for the intentional purpose of each part of the *DS/DM* workshop structure.

**Breathing**

A very thin line of air runs inside your body. Visualize the internal path of the air and feel it running through all your joints. Start from the toes, move up through your feet, ankles, knees, pelvis, lower back, stomach, spine, chest, shoulder, arms and then, at the end, reach beyond your fingertips. Grow, keep growing inside this thin line. Imagine an endless sense of reaching, reach the limit of your body and try to go even further. Release the length of the body, while disappearing inside yourself. Go back through the same thin line, very deep inside and become very small, always ready to appear again.

**Expanding stretch/Break boundaries/ Endless movement**

Penetrate the space, appropriating all the space around you.
Break the boundaries and resistance of the body aiming for the unknown, leaving behind the safe area of what you know, or are aware, can be achieved physically.
Expand the space that has been created inside your body.
Shift your balance and connect one stretch with another. Sustain an endless sense of movement.
Change your rhythm to reinvent yourself.

**Jumping**

Drop the weight of your body. Let it rebound. Recognize the sound you can produce with your own body. Stay gentle, soften your body, soften your bones and joints. Sense the surface of your skin. Feel how the rhythm changes. Abandon all thought. Sense the different spaces around yourself and discover your own architecture. The breathing still takes places inside your body. The air can be present inside your feet, toes, ankles, hips, shoulders, neck, head…Drop the activity to zero.
Nothing.
Keep a soft body and enjoy the process of passive activity. Let the result of the jumping work inside your body. Listen to the echo. Have an imaginary look inside your body, look at your joints and find the possible spaces that you still need to conquer.

**Reducing incorporation/ Thick air/Resistance**

The air around you starts to get thicker.
You may experience that you have more resistance when you want to stretch your body.
The length of your movement starts to reduce gradually.
The body is still shifting the balance from the inside. The movements are always endless, continuous, developing themselves.
Reduce the length even more.
Incorporate the movement.
The shape of the body is the result of its resistance with the air around and of the shifting of balance.
Make the movement smaller,
smaller,
smaller...
and
freeze.

**Corinne Jola**, researcher in cognitive neuroscience (PhD, MA) and dance (post-grad. Dance Culture, Labanotation, and IWANSON) is active in both fields, basic scientific research and dance. Primary aspects of her research are body and movement representation and spatial perception and orientation. These are part of a wide range of currently intensively studied research contents that are already contextualised in dance; and she refers to dance to further investigate these topics. She also fosters scientific methods in choreographic concepts, using creation to increase the dancers and audiences' self-awareness.

# Movement Intention: dialectic of internal and external movements

In the work of EG | PC, intention is the source of the movement form. This is in contrast to many classical forms of dance in which there is more emphasis on the movement form as the basis. For example, the alignment of the legs and feet in plié in EG | PC's dancers is defined by a certain intention and the body's momentary natural constraints. However, the effect relationship between covert intention and overt movement form can be unclear to an outside observer, particularly to scientists. In the following paper, **Corinne Jola** outlines some theoretical thoughts and practical observations about the dialectic of intention and form from the field of Cognitive Neuroscience.

Cognitive Neuroscience is a scientific field that focuses mainly on the systematic experimental study of cognitive functions and their neurobiological instantiation. Cognitive processes monitoring movement, intention and body representation have recently become more and more popular to investigate. Thus, our knowledge of dance, namely how movements are generated, perceived, and memorized has increased within basic scientific research. However, there is little transfer from cognitive neuroscience to dance practice. Many processes observed and experienced in dance are neither scientifically understood nor experimentally investigated. Movement intentionality and its relation to form is clearly one such important aspect.

In everyday life, intention describes a movement goal, bending forward to grasp a flower, for example. A movement with such explicit intention has a functional component. Dancers often search for functional intentions in abstract movements. The subjective mental experiences that accompany movements are studied in terms of visual or motor images. For example, we can imagine picking up a flower while bending but we may also imagine moving our body upwards while bending. Thus, movement intention may be classified as either explicit or implicit. Implicit intentions are mentally generated directional images that have no explicit functional component like the flower-picking example above. In dance, visual or motor images may go in the opposite direction of a movement to achieve a better alignment. Another example is to have the intention to make a movement without actually executing it. The number of possible implicit intentions within a movement are infinite. However, to what extent does an implicit intention become instantiated in the movement form? What effect does an intention have on the neuronal process? And finally, how does it affect the audience?

Imagine seeing two dancers doing exactly the same movement – is it possible that they have different intentions? Imagine they leave a fully matching trace of their bodies in space and time, how is it possible then that effects of differences in their intentionality could be seen? Imagine two dancers performing different movements with the same intention - do you (the viewer) experience the meaning of the movements as being different? Questions such as "What is the movement representation of intention in the brain?", "What can we see of the intention?", "What can we notate?", "What do we execute when we perform intention?" are relevant to discuss, not only for a deeper theoretical scientific understanding of the cognitive motor processes, but also for practical application in the art of dance.

**Intention in motor control**

In the theory of motor control and as a cognitive phenomenon, intention refers to the neuronal stages preceding a motor command and is thus necessarily involved in any voluntary movement. A movement without prior intention, such as a reflex, is not a voluntary movement by definition. Reflexes are evoked by external stimulation and have no need for internally generated intention. It is even impossible to voluntarily inhibit or modify a reflex.

More than a century ago, James (1890) stated in his ideomotor theory of voluntary action that any intention or idea of an action has the tendency to cause the relevant movements. Interestingly, much later on, it could be shown that merely viewing objects evokes behavioural responses in accordance with the envisaged motor activity as well as increased activity in brain areas related to a prototypical movement towards the object (for references, see e.g. Jeannerod and Frak 1999 or Grezes et al 1999). Thus, already pure visual perception of objects seems to evoke the intention causing the relevant movements without necessarily becoming conscious.

The process of movement cognition and production can be simplified into three separate stages, impulse, intention and action, though confusion of the stages as well as their relationship remain. Gough (2005) for example describes the intention as a subconscious idea (representation) of how to realise the impulse. However, intention can be experienced in the form of mental images. These are either congruent or incongruent to the direction of a movement, its sensation or its goal. For example, when dancers in the *Double Skin/Double Mind* (*DS/DM*) workshop from EG | PC are told to reduce their movements while upholding their intention to extend, the body limbs may be held in a particular posture, while the mind with its mental images of the moving body remains alert. In this exercise, some minimal movements may be observed from the outside. Schwoebel *et al*. (2002) observed a patient with a brain lesion who automatically executed imagined movements of his left hand without being aware of his movement. The authors concluded that their patient lacked an inhibition of intention normally involved in motor imagery. Thus, considering the exercise in the *DS/DM* workshop, the performers mentally reflect their movement intentions while at the same time inhibiting the actual intention to move.

The function of intentions is thought of as offering a reduction in action errors and an increase in the self-agency or ownership of the feeling of moving. This is a critical statement, since the match between intended and realized movements is usually achieved automatically and without awareness of the component processes (Jeannerod 1997). Experiments that investigated the chronometry of volition (i.e. the Libet Paradigm, Libet et al. 1983 which showed that the intention to move occurs 200ms before the actual movement) are controversially discussed. By contrast, novel tasks or situations that produce conflict or incongruence between intentions and sensorimotor consequences, or between sensory modalities, clearly involve awareness of sensory feedback and conscious control of action (Wolpert et al. 1995). Such explicit monitoring then becomes a crucial constituent in the governance of our conscious behaviour and can be seen as a process whereby an internal model of self-generated action is checked against an actual state of affairs, and updated accordingly.

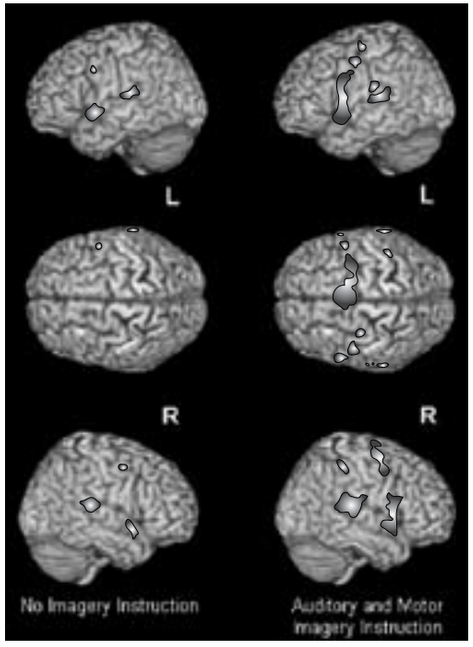
In conceptual dance, it is often a voluntary decision to superimpose contradicting intentions. In the work of EG | PC intention is used as a deliberate practice. The assumption on the part of the artists is that, when consciously attended to, the intention within a movement becomes somehow perceivable, e.g. it may register with the viewer as the motivation for the movement

(this motivation may be corresponding with the intention or not). This shall be the case even when the performer inhibits a direct expression of the underlying intention as in the example mentioned above. However, what is the causal impact of intention on the performed movements whether intention precedes or goes alongside action? Two parties play a role in the discourse of the external manifestation of inner thoughts, the performer who places attention on an intention, and the spectator who observes and interprets the movement. One might consider measuring movement parameters for a scientific quantitative analysis to further understand how a hidden intention imposed on a performed movement affects the actual movements and, as a consequence, its meanings.

To *perform intention*, muscle cells need a neural impulse to generate action potentials to contract. The processes from the motor nerve impulse to the muscle contraction are complex, but well studied. In contrast, the impulse initiation mechanisms in the brain and the cognitive mechanisms involved are complex, and their relations to particular movement expressions are not yet studied in great detail. Motor control was not even considered a cognitive process until recently. Certainly, though, cognitive processes are involved when intention is used deliberately.

The process from intention to movement is initiated in the frontal lobe (prefrontal cortex, primary motor cortex and motor cortex). Lau et al. (2004) for example, found enhancement of brain activity in the pre-supplementary motor area (pre-SMA) when subjects paid attention to their intention compared to attention to the movement itself. Intention as part of the movement planning stage is then transformed to motor impulses in the cerebellum. The actual movement - the interplay between sensory input and motor control - is monitored in the cerebellum and the parietal lobe. The cerebellum compares movements while the parietal lobe receives sensory input. Thus, when subjects concentrate on an external goal, it has been assumed that the performance increases because it releases the fine tune motor control to the cerebellum. Finally, motor impulses are instantiated in the muscles, which unfold movements.

The performer's subjective sensory perception is influenced via feedback loops not only by the movements themselves, but the intention that initiated and accompanied the movement. The interplay of multiple brain areas is a response to the characteristics of the initial intention. For both, externally evoked or internally generated intentions, cortical connections are affected in the transformation stage. For example, if an intention evokes a motor image, the sensorimotor cortex might be activated. Furthermore, since intentions can be evoked by external oral or written descriptions, such as the Labanotation (see also paragraph on documenting movement form and intention), the pattern of brain areas involved will be specific in each case.




Example of a study with musicians engaged in listening and playing with and without motor or auditory imagery. Brain areas concurrently activated in music listening and music playing in two different instruction modes, i.e. with no imagery related instruction and with the instruction to generate a mental image of the missing sensory information. For example, when listening to music they were asked to imagine the related motor activity that would produce the sound. The study exemplifies how cognitive top-down processes such as motor imagery can engage brain areas related to the actual task, e.g., motor areas leading to an audio-motor coordination network. Similar to this network in skilled pianists, an intention-motor coordination network in skilled dancers may be suggested.

Two parties may *perceive intention*, namely the actor (performer) via sensory feedback as well as the observer (audience) by watching the actor. The sensory feedback provides the performer with a subjective experience of the intentionality effects. These subjective sensations, however, are not directly accessible from the outside and thus very difficult to investigate scientifically. So, what does the observer perceive from the outside?

A sensorimotor representation has been assumed to be activated in response to executed and observed actions, i.e., within the performer and the observer. In an experiment with monkeys, the same neurons were activated when the monkey observed the experimenter grasping food as well as when the monkey executed the action himself (Rizzolatti et al. 1996). Grasping food is an evolutionarily essential and meaningful action. Does the representation differ for meaningful actions (e.g. symbolic actions) and abstract actions (e.g. non-representational actions)? In the action framework of Prinz (1997), meaningful actions refer to the intended effect of the movement pattern as well as to the meaning of the action. In contrast, learned meaningless actions refer solely to the intended event pattern. Intention and attention to movement are thus supposedly distinct cognitive processes. Recent studies also found activity in the sensorimotor system when subjects were observing abstract actions. The activation was stronger in case the abstract actions were familiar to the observers – which means that they have an intentional representation for seemingly abstract actions.

Interestingly, some authors assumed that imitation is only possible if the intention of a movement is available (on mechanisms in intention see for example Wohlschläger et al. 2003). Thus, it may well be that learned meaningless movements receive an intentional feature. And, if a movement is part of an observer's own repertoire, an intention of the observed movement is accessible. Thus, mirror neurons might only ever respond to perceived or initiated intention. Interestingly, in grasping and pointing experiments, it could be shown that it is not the actual movement path that is remembered but the intention to grasp. However, when I lift my right arm with the intention to grasp an object or when I just execute the movement while focussing on the particular movement form – does this mean that the meaning of the movement changes?

*Measuring intention* in an objective way may help answering such questions. If movement intention is visible, then a movement will alternate correspondingly. Thus, difference in movement should be measurable and notable. For example, to measure intention effects on a movement, a movement must be compared when performed with at least two different intentions. Differences in movement parameters then indicate the effect of intention.

Several studies have shown an effect of mental processes on movement performance. Particularly setting an external focus has been found to benefit performance in motor learning. For example, when lifting my right arm, the arm can be lifted with the intention to grasp a book on the uppermost shelf (external focus). Or the arm may be lifted by moving it along a particular learned or imitated movement path (internal focus). Interestingly, Hanrahan et al. (1995) showed evidence of intentional effects on motor performance. The authors found that dancers' performance for several postures, such as arabesque, increased particularly if the mental image involved intentional aspects. Another example of measuring intention effects is the work of Glenberg and Kaschak (2002). The authors compared the response time of a movement when subjects were presented with directional sentences simultaneous to the movement. The directions between the performed action and the sentences visually presented were either congruent or incongruent. The authors found that the movements were slower when the sentences were incongruent, i.e., indicating a movement in the opposite direction. Their study clearly showed an automatic effect of intentional incongruence. However, the differences in response time do not allow any inferences about changes in the performed movement path. Incongruent words might have only delayed the movement onset time while the movement remained identical.

Further, in one of my studies, I found that visualisation of a goal increased the ability to abduct the big toe, a movement rarely executed in everyday life. Thus, it can be assumed, that the intentionality in the form of visualisation or visual feedback does indeed have an effect on the movement performance. This may be the case because movements are planned and controlled and thus possibly represented at the level of perceivable effects and not by movement parameters (such as muscle activity, velocity, etc.). Several studies have shown that the movement trajectory in arm reaching tasks indeed varies when carried out under different conditions and so multiple internal models for movement representations have been suggested (for a review see for example Kawato 1999). However, no scientific study has yet been carried out to investi-

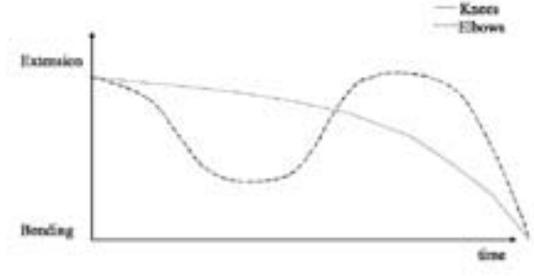
gate how intention alters the expressive moment of the movement in a systematic way. And it remains a topic for debate and further investigation in relation to the notation and documentation of performing arts, e.g. if one can notate movement intention, does this result in a documentation of qualities previously assumed difficult if not impossible to capture (Louppe 1994)?

**Documenting movement form and intention**

Any possible movement can be notated in Labanotation, an abstract symbol notation in dance. Symbols written on a staff indicate the location of different body limbs in space. When notating a movement, it is often a question how much information is necessary to describe the movement correctly. On the one hand, certain body restrictions do not need to be notated as they predetermine the movement. On the other hand, some details should not be notated, e.g. because they are intentionally undetermined by the choreographer. In the best case, the notation only contains information necessary to understand the movement particularities. However, none of these considerations genuinely look at how the brain deals with different types of information. Does different information, which actually may lead to the very same movement expression, also have the same effect on how the brain 'reads' and processes it?

Thus, two points are critical to consider in movement documentation. First, it is a balancing act between the simplicity of a notation and the increase in degrees of freedom. Second, the intention is not automatically given within a movement form description. If necessary, additional signs can be used to indicate intention. Thus, when notating one has to decide between the conflict of complexity and simplicity. A movement can either be notated in every detail defining posture form, movement path and rhythm, or with only little information about the movement by defining the intention. For example, a notation may be more easily transformed into a movement when it involves fewer signs but clear intentional information. In my own choreographic work, I have experienced that a movement executed by two dancers with a simple intentional instruction matches better than when transformed from a more precise but complex description. Nevertheless, intentions and the corresponding actions do not necessarily correspond - even if they are perceived as such by the performer – and possibly by the observer, too. Thus, the perceived movement intention and the instantiated movement form may be incongruent.

The figure below illustrates such a case. The x-axis indicates time and the y-axis the extension. The curves show the behaviour of the knees and elbows during the intention to reduce from an outstretched position. The stages of the arms and legs are not identical while both pursue the intention to reduce. Nevertheless, the intentional verbal instruction seems to facilitate the execution of the movement and its meaning. Thus, the incongruence between intention and movement shape does not matter. It is a 'natural rule', defined by anatomical and directional constraints. However, when documenting, it is unclear which information should be given. Even more, it's surprising that we do not become automatically aware that our limbs shape a different movement path while following the same direction – from expansion to reduction. The brain does not 'note' the difference between the linear concept of the verbal instruction and what our limbs actually do to achieve this.



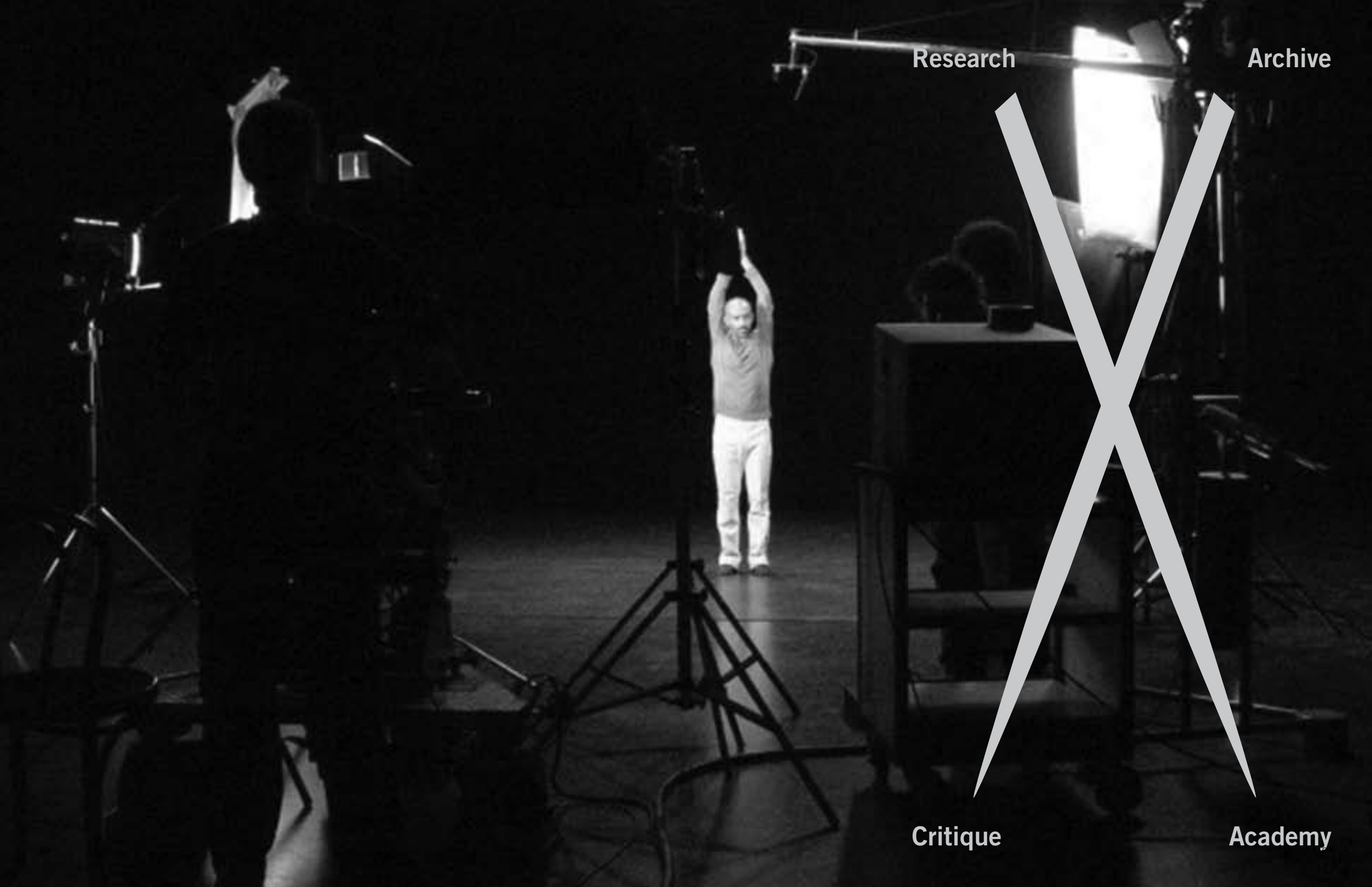

Graphic illustration of knee and elbow joints alignment from expansion to reduction with degree of joint bending on the y-axis and time on the x-axis.

**Consequences of intention**

First, I questioned whether the concept of an 'intention to movement' effect-chain actually exists by asking whether and how intention influences action. Then I proposed that if intention does influence action (or the movement), changes in movement parameters must be measurable in an objective way to propose a causal relationship of the cognitive processes or the subjective experiences involved in intentionality and the movement form. So far, it is our own everyday life experiences as performers that give us a strong sensation of intentionality and convince us about possible effects - despite no or little scientific evidence. If conscious implicit intention does indeed modify movement, there is still a complex matrix of all the possible causal effects to discuss. The effects may be either inconsistent or consistent, unspecific or specific, reliable or unreliable, etc. However, only consistent effects lead to reliable measures. This means that the causal effect can only be inferred if a movement unfolds by a specific intention with relative consistency. In contrast, if the relationship is inconsistent and the movement parameters change every time a movement is performed (and measured), the intentional effects are unreliable, maybe even random and therefore unpredictable, but nonetheless existent. In the work of EG | PC, at least in the *DS/DM* workshop, the reliability of the movement form within dancers is secondary. The idea is that the intention itself is the goal and random effects are within the voluntary range of individual expressive bodies.

Even if a general effect of intention on performance is very likely and thus useful from an artistic perspective – it only contains informative value in the field of cognitive neuroscience in the case where reliable consistent effects are measurable to infer systematic patterns. Nevertheless, the concept of intention as a dialectic between inner and outer movements can be investigated from different perspectives even if somewhat irreconcilable. One of the goals of an interdisciplinary research project involving art and science is to expand definitions, and this is what I have attempted to do here in this short essay. Clearly there is still a lot to explore in the relation between movement and intention and this can be done in artistic explorative ways as well as by systematic experimental investigation. In the best case scenario, the two forms will eventually merge.


- Glenberg AM, Kaschak MP (2002) 'Grounding language in action'. *Psychon Bull Rev* 9: 558-565
- - Gough, M (2005) 'Splines in Space'. *Proceedings of Immeasurable? The Dance in Dance Science,* Laban 23 July 2005.
  - Grezes J, Costes N, Decety J (1999) 'The effects of learning and intention on the neural network involved in the perception of meaningless actions.' *Brain* 122: 1875-1887
- Hanrahan C, Tetreau B, Sarrazin C (1995) 'Use of imagery while performing dance movement.' *International Journal of Sport Psychology* 26: 413-430
- James W (1890) *The Principles of Psychology.* Holt, New York
- Jeannerod M (ed) (1997) 'The cognitive neuroscience of action'. In: *Fundamentals of Cognitive Neuroscience.* Series Eds. Farah, M.J. and Johnson, M.H. Blackwell Publisher, Oxford
- Jeannerod M, Frak V (1999) 'Mental imaging of motor activity in humans'. *Curr Opin Neurobiol* 9: 735-739
- Kawato M (1999) 'Internal models for motor control and trajectory planning.' *Curr Opin Neurobiol* 9: 718-727
- Lau HC, Rogers RD, Haggard P, Passingham RE (2004) 'Attention to Intention.' *Science* 303: 1208 - 1210
- Libet B, Gleason CA, Wright EW (1983) 'Time of conscious intention to act in relation to onset of cerebral-activity (readiness potential) - The unconscious initiation of a freely voluntary act.' *Brain* 106: 623-642
- Louppe L (1994) 'Imperfections in Paper.' *Traces of Dance: Drawings and Notations of Choreographer*s. Paris: Editions Dis Voir: 11-33.
- Prinz W (1997) 'Perception and action planning.' *Eur J Cogn Psychol* 9: 129 - 154
- Rizzolatti G, Fadiga L, Gallese V, Fogassi L (1996) 'Premotor cortex and the recognition of motor actions.' *Brain Res Cogn Brain Res* 3: 131-141
- Schwoebel J, Boronat CB, Branch Coslett H (2002) 'The man who executed 'imagined' movements: evidence for dissociable components of the body schema.' *Brain Cogn* 50: 1-16
- Wohlschläger A, Gattis M, Bekkering H (2003) 'Action generation and action perception in imitation: an instance of the ideomotor principle.' *Philos Trans R Soc Lond B Biol Sci* 358: 501-515
- Wolpert DM, Ghahramani Z, Jordan MI (1995) 'An internal model for sensorimotor integration.' *Science* 296: 1880-1882


Research
Archive
Critique
Academy

**Scott deLahunta** works from his base in Amsterdam as a researcher, writer, consultant and organiser on a wide range of international projects bringing performing arts into conjunction with other disciplines and practices. He is an Associate Research Fellow at Dartington College of Arts and Research Fellow with the Art Theory and Research and Art Practice and Development Research Groups, Amsterdam School of the Arts. He lectures on the Master in Choreography/New Media at the Amsterdam School of the Arts and serves on the editorial boards of *Performance Research, Dance Theatre Journal* and the *International Journal of Performance and Digital Media.*

# Sharing questions of movement

Many disciplines are concerned with recording, analysing, archiving, modelling, documenting, simulating and notating human movement. These include choreography and dance, architecture, cognitive and computer science, film animation, visual anthropology, biomechanics, engineering and technology research. In this essay, **Scott deLahunta** speculates on the possibility of shared procedures for movement research that will draw attention to the value of choreography and dance for other movement research disciplines, as well as generate new insights that will augment choreographic innovation. This essay was written before the start of the second phase of the *Notation Research Project* described in this book, therefore the references to this project towards the end are to be read as background to the present moment. The reader will also encounter projects described in more detail in this book by Frédéric Bevilacqua and Chris Ziegler.

Science and technology have already established common ground, partly on the basis of sharing computer-related movement research across various fields (e.g. ergonomics, biomechanics, computer animation and robotics). Choreographers and dancers have had some involvement with computers since the 1960s, but a clear line of collaborative projects underpinned by shared movement research issues has emerged in the last decade.[1] Developments in the future will take advantage of a general increase in support for interdisciplinary research, and more effective shared methodologies based on a better understanding of differences in work and research cultures.[2] The challenge for choreography and dance will be to retain its unique artistic and creative relationship to movement questions and to contribute to the growth of standards and procedures from this critical perspective. One important basis for this can be traced to the following meeting in 1994 between digital artist Paul Kaiser and choreographer William Forsythe.

> "William Forsythe tried to convey to me how he derived unexpected kinds of movement from the vocabulary of the classical ballet. As he described his methods, he began drawing imaginary shapes in the air, using all parts of his body – not only his feet and hands, elbows and knees, but also his skull, shoulders, butt, and even his ears and chin. He talked and moved rapidly, building up a complicated and invisible geometry of dance that I had no ability to visualise or follow."[3]



Soon after this demonstration, Kaiser suggested that animated computer graphics could make the ideas behind Forsythe's movement creation more accessible to a non-dancer. A team of multimedia researchers at the Centre for Art and Media Technology in Karlsruhe (ZKM) picked up this proposal; eventually producing a prototype that included video illustrated by the addition of graphic lines tracing the movements as Forsythe demonstrates them. The prototype's success inspired the team to create a self-tuition education tool to assist new dancers entering the company in understanding Forsythe's choreographic thinking.[4] This resulted in a version with over 100 short lecture-demonstrations for use by the company, and public interest in the project led to the eventual publication and distribution of the interactive multimedia CD-ROM *William Forsythe: Improvisation Technologies, A Tool for the Analytical Dance Eye* (1999).

Not surprisingly, dance teachers, scholars, choreographers, dancers, presenters and audiences received this version enthusiastically. The important observation for this essay though, was the appearance of clear interest from specialist disciplines outside of dance, for example architecture, human motion studies, cognitive psychology and anthropology. This is the point at which this project enters the shared field of movement research. The interactive multimedia CD-ROM is itself the product of a process of motion analysis and representation; as a *tool for the analytical dance eye* the dynamic visualisations are presented in the context of a systematic organization of sophisticated choreographic/moving ideas. These lie somewhere between a notation system and the choreographer's sketchbook; presenting, in Forsythe's own words, "just some of the ways of thinking about analysing motion".[5] The innovative visualisations and organisation of the materials on the CD-ROM make it possible for movement researchers in other fields to apply this thinking to their own areas.[6]

In early 2000, a group of artists and researchers from dance, film animation, artificial intelligence, computer science and engineering came together at Arizona State University to initiate the *motion*[e] project. The aim of the project was to 'revolutionize computer-assisted documentation, analysis, teaching and creation of modern dance' and to create art works, science and art publications, new technology tools and methodologies. One of the art works was choreographed by Trisha Brown and entitled *How long does the subject linger on the edge of the volume...* (a comment she overheard from one of the computer operators).[7] The piece uses a 3-D motion capture system to record movement information or motion data from the dancers in real-time meaning while they are performing. This data interacts with a cluster of intelligent agents created by software artist and computer scientist Marc Downie and produces moving animations, which are projected onto a large scrim at the front of the stage.

Downie and his collaborators have written a statement describing their approach:

> "The essential characteristic of our imagery is this: It thinks by picturing things. It sketches the relationships it perceives as soon as it starts making them out. This keeps its frames in constant flux, for it continually readjusts itself as it tentatively advances its ideas. (...) What is the imagery trying so hard to grasp? The same thing we are: the intricacy of Trisha Brown's choreography as it unfolds."[8]

This statement and the dance are the results of a collaborative artistic and technological research process that took approximately three years to complete. These and other outcomes of the *motion*[e] project (i.e. work with Bill T. Jones, several scientific papers, etc.) represent an integration of shared questions about movement research drawing from specialist knowledge in several disciplines. The achievement of this connection is most evident in the collaboration between Trisha Brown and artist/computer scientist Marc Downie and their mutual desire to understand what constitutes movement in time and space in both physical and mathematical descriptions; coupled with its performance and perception by the viewer.

Before the shared procedures mentioned at the start of this essay can be achieved, there is the need to produce descriptions and representations of movement research that are meaningful and valuable to the various disciplines involved. These co-descriptions, mutually understood, help to bridge differences in work and research cultures and help shared procedures evolve. Co-description is one of the themes of a new network drawing links between research groups in Genoa, Paris, Bonn, Amsterdam and Birmingham.[9] At the core of this network are two important movement research projects: the ongoing development of the EyesWeb software in Genoa and the work of the Gesture Analysis group at IRCAM (Institute for music/acoustic research and coordination) in Paris. The

strongest evidence in support of the speculation of this essay can be found in recent projects at IRCAM (some use the EyesWeb software) in which the aims of the creative and research processes were similar to those of the *motion*$^{e}$ project: to develop interaction between choreography and computation, based on a shared understanding of movement.[10]

For one of these recent projects, the choreography titled *This is My House*, collaborators technology researcher Rémy Muller and choreographer Myriam Gourfink developed a system "using computer vision and machine-learning techniques to delegate to the computer the task of doing human motion following".[11] This following technique, in the words of Gourfink, made possible "the processes of modification of the choreographic score" during the performance itself.[12] Without going into the elaborate details underpinning these statements, the relevant observation for this essay is that this collaboration developed a shared approach to movement research, created mutually understood descriptions and produced meaningful results in the context of both dance and science/technology research.

In Amsterdam, dance company EG I PC (Emio Greco and Pieter C. Scholten) is exploring innovative ways of documenting, analysing and representing their work.[13] This is taking the form of a long-term interdisciplinary research project, guided by dance researcher and former company dancer Bertha Bermúdez. The aim is to create a dynamic source of information about their past, present and future work; a 'living archive' based on principles of movement and choreography that are constantly evolving. This gives rise to many questions such as what notation system can capture inner intention as well as the outer shape of gestures and phrases, how to analyze and represent open processes in relation to artworks, how to document and enhance Greco and Scholten's critical/reflexive approach to choreography.[14]

This interdisciplinary research has taken shape and evolved along several lines including: in September 2004, the company's Salon #5 was dedicated to the implications of 'repertoire' and archiving for contemporary dance and provided an early platform for a discussion of Bermúdez' research into notation; in 2005 the company was in residence at the Amsterdam School of the Arts where they explored themes related to reproduction and authenticity, new systems of notation and dance idioms; in 2005 and 2006 a documentary film was made, based on key principles of the *Double Skin/Double Mind* workshop in Vienna (August 2005); research is underway with trained specialists in the Laban and Benesh notation systems (Bermúdez has received funding to study the Benesh system); and computer based techniques of gesture analysis and simulation will be explored with the previously mentioned research group at IRCAM in Paris. There is a new initiative to prototype interactive graphic visualisation tools that will support both the documentation and creation, and an exploration of what the emerging field of cognitive linguistics might bring to bear on the project is planned. In addition, there is ongoing exchange with similar projects involving dance artists based in Europe and the United Kingdom.

From this background of research, during the next six to eight months support will be sought to consolidate and focus the inquiry and to engage on a more consistent basis with an interdisciplinary team of specialists from the various fields already mentioned. Here is where the shared approach to movement research as surveyed briefly in this essay comes into view: different disciplines from arts, technology and sciences working together to further our understanding of human movement in all its complexity. A variety of outcomes are anticipated including the integration of fresh insights from science and technology into the already physically and philosophically charged creative foundations of the company's work.

---

This is an adaptation of a text written in early 2006 therefore the references to the Notation Research Project in these last three paragraphs should be read as historical background. The full original version is published in: *De theatermaker als onderzoeker*: *Theater Topics II*. eds. Maaike Bleeker, Lucia van Heeteren, Chiel Kattenbelt & Kees Vuyk. Amsterdam University Press. 2006. pp. 182-186.

All URLs accessed 17.08.2007

1 For some historical background prior to and including the 1990s see: deLahunta, Scott 'Periodic Convergences: Dance and Computers'. in *Tanz und Neue Medien* (book and cd-rom/dvd). eds. Dr. Söke Dinkla and Dr. Martina Leeker. Berlin: Alexander Verlag. 2002, pp. 66-84.

2 Clear evidence for this growth can be found in the cultural and education funding programmes of several countries, in particular United Kingdom, Canada and Australia, with recent initiatives structurally joining together arts and education funding.

3 Paul Kaiser quoted by Astrid Sommer. 'Improvisation Technologies: Just the Basics'. in: *William Forsythe Improvisation Technologies: A Tool for the Analytical Dance Eye* (booklet to accompany CD-ROM) special issue, Second Edition. ZKM: Karlsruhe/Hatje Cantz Verlag: Ostfildern. 2003. p. 10.

4 The concepts of 'choreographic thinking' or 'moving ideas' can be confusing to other disciplines outside of the contemporary dance field. There are some approaches to these published in a recent short essay: deLahunta, Scott. 'Moving Ideas: questions for the dancing mind', in *Ballettanz*, October 2005, pp. 20-23.

5 William Forsythe in an interview with Nik Haffner. 'Observing Motion: an interview with William Forsythe'. *in: William Forsythe Improvisation Technologie: A Tool for the Analytical Dance Eye* (booklet to accompany CD-ROM) special issue, Second Edition. ZKM: Karlsruhe/Hatje Cantz Verlag: Ostfildern. 2003. p. 20.

6 It is the interest shown from these other specialist disciplines that has compelled Forsythe to establish a Foundation that sponsors "interdisciplinary research to understand better the embodied knowledge articulated by the dancing body". Recently, interactive design researchers from the Advanced Computing Center for Art and Design at Ohio State University have started to work on a multimedia education tool based on Forsythe's choreography *One Flat Thing, Reproduced*; and they have developed an innovative research methodology to engage with other disciplines at the University (architecture, music, cognitive psychology, engineering and comparative studies) in the design research phase of the project.

7 From Trisha Brown's statement on the *motion*$^{e}$ documentation site: ame.asu.edu/motione/research7_brown.html

8 This statement and the relevant chapter from Marc Downie's extensive PhD thesis is available here under 'Artworks/how long...' and 'Publications': www.openendedgroup.com (additionally there is an interesting interview with Downie here: www.artificial.dk/articles/downie.htm)

9 This emerging network comprises at present the following organisations: Eyesweb (Genoa) www.eyesweb.org; IRCAM (Paris) www.ircam.fr; Animax Multimedia Theater (Bonn) www.animax.de; SYMON, University of Birmingham www.symon.bham.ac.uk

10 See the Real Time Applications research group: www.ircam.fr

11 Muller, Rémy. 'Human Motion' Following system using Hidden Markov Models and application to dance performance. *IRCAM internal report*. March-June 2004, p. 2.

12 Myriam Gourfink's website (the reference can be found in the description of *This is My House*): www.myriam-gourfink.com

13 The project has received initial support by the Art Practice and Development Lectorate, Amsterdam School of the Arts in the frame of a residency for the company in 2005 and ongoing support for the development of the notation and archival research; including support in 2006 for my work on the project. See the company website for more information: www.emiogrecopc.nl

14 For more information about 'Choreography as a Critical Practice' see Pirkko Husemann's essay in *Stationen 1* Berlin: Comp. Thomas Lehmen. 2003, pp. 10-16; Additionally please refer to Greco and Scholten's manifesto in 'The Wake-Up Calls of Emio Greco and Pieter Scholten' by Gabriel Smeets, 2004 (downloadable at www.emiogrecopc.nl)

**Susan Melrose**, M ès L, DEA, Doctorat (Sorbonne NIle) is Professor of Performance Arts and Research Convenor, Performing Arts, in the School of Arts, Middlesex University. After completing doctoral research in performance analysis at the Sorbonne (NIle) in the early 1980s she established and ran postgraduate profession/vocation-linked theatre and performance studies courses at the Central School of Speech and Drama and Rose Bruford College London. She has taught at universities in Turkey, France, Tunisia and Australia. She is widely published in the fields of performance analysis, performance writing and critical semiotics. A number of presentations and keynote papers are published at www.sfmelrose.org.uk

# Not yet, and already no longer

**Loitering with intent between the expert practitioner at work, and the archive**

The following text by **Susan Melrose**, was originally presented live as a brief keynote address (a 'provocation') to a specialist audience at the *Performance as Knowledge Seminar* (London 2006).[1] In it, Melrose makes a few points on expert performance-making practices as research, time, the university and the archive. She seeks to ask a number of meta-theoretical questions about the disciplinary specificity of performance-making by expert/professional practices/practitioners, about writing (in the university) as a mode of secondary production which tends to take performance as its object; and about 'the archive'.[2]

## 1.

A key issue raised in the mid-1980s, with regard to the archive, was that of the archive as "mnemotechnic device", focused on the attempt to preserve "signs of a life" that are already lost (Lyotard 1988/1991). According to that tradition what is 'lost' is the artwork's constitutive enigma, its particular struggles with "resistant materialities" (Hayles 1999); and what is retained is a synoptic re-ordering of the artwork's similarly constitutive technique, its technical aspect, its technicity. Faced with that loss, the archive as mnemotechnic device, it was argued by Lyotard in the 1980s, would tend to provide not so much a record of expert practitioner product, as a "testimony to the power …to conserve… of the curators" themselves.

## 2.

On that basis, my second point concerns what I'll call expert arts-practitioner compositional processes, undertaken in the time of making. Expert composition remains a curiously under-theorised notion in expert performance-making, despite the interest in composition, similarly in the 1980s, of the otherwise very widely cited Deleuze: "What is a composition, and how does it differ from an organization? A composition is itself an organization, but one that is in the process of disintegrating. Beings disintegrate while ascending into the light". (Deleuze 1981/2003). What I need to distinguish here, in terms of composition, and with the notion of archiving expert process in mind, are the times of composition, of making new work over time, not least where a professional deadline comes into play: first is the time before making the work (when it is thought on, in some manner or another); second are the times of making itself; third is the time of finishing, and fourth is the time of the 'finished work', when it has emerged, and been identified as such, and – so to speak – put 'out there'. And then comes the time of the archive, which tends, explicitly or implicitly, formally to thematise and allow reflection on time past (hence Lyotard's "mnemotechnic device"): the archive as mnemotechnic device tends to focus a user on an other's work already made. It tends, in older tradition, to intervene not only after the production of the work, but after its evaluation (and selection) by others.

The archive's timing, if I might be crudely reductive here, has tended to highlight product rather than process; it tends to highlight single-artist signature, rather than professional collaboration; and it tends to take onboard (to have taken onboard) judgement by performance's others. I am explicitly raising the issue of the evaluation of the 'finished work' here because this issue begs another set of questions, specific to the times of art practitioner compositional processes: these are questions of when and how, and on what sorts of bases, the artist knows that the (or her, or his) work is emerging *as such*, and will be finished. And then, as Lyotard has asked: what is the work that finishes the work? – which differs, he implies, from the rest of the work; what is its specificity (since in my experience it is highly specific), and when and how does it take/has it taken place? These final questions may well seem imponderable, viewed from outside; but the decisive gesture, and the judgement that the work is finished (or 'ready'), *happen*, even if their particulars tend to be felt or sensed, and even if the practitioner tends, at precisely that 'finishing' moment, to feel that her work is unfinished, even compromised: that she has 'run out of' time. The work, on this basis, tends, to the practitioner, to be no more than '*just in time*'. 'Eventness' ('eventicity', in Lyotard) can be identified as such by all of us, even by expert practitioners who are more interested to underline – as many are – what remains imponderable in arts-expert practice.

## 3.

I want to remain, for a moment, with this issue of time, in order to consider, very briefly, what I'll call the irrepressible drive, of the archivist and the academic, to inscribe, describe, interpret, hence to practise temporal closure on what might otherwise be described as the work's openness, its residual unfinishedness to the practitioners concerned; its necessary compromises, its constitutive dynamism, and its fragility - hence its status as non-identical with the perspectives of academic and archivist alike. Confronted for the first time by the work, Lyotard wrote in the 1980s, we are disarmed – if it works for us – and what follows is that in some haste, the academic or critic "writes twenty or one hundred pages [in the attempt] to pick up the [mind's] pieces, and one puts the plot together again", but in terms specific to the academic or critic's own perspective.

That effect of breaking and picking up again, Lyotard continued in the late-1980s, "owes nothing", however, "to the place (the work) can take [and which in a sense it never takes] in the intrication of sensory positions and intelligible meanings". [my emphasis] Lyotard's point here is a delicate one, and it is both (knowledge-)political and involves a certain sleight of hand, not least if our perspective is that of the performance-*maker*: The writer sets up a logic of academic/critical/archival spectating that is wholly separate from and *follows* exposure to and engagement in 'the work', which those spectators observe and seek to (re-)invent. What Lyotard leaves out of this equation, however, is the role and the decision-making and the positioning of the artist or performance-maker as Actor (or subject).

Now, I am not myself wholly persuaded that the expert practitioner, the choreographer, for example, is usefully extracted here, not least if it remains the case that we know 'the work' through the artist's signature (Rosemary Butcher's work, for example, 'is' what we understand by her name). Nor am I persuaded that the expert practitioner fails to engage, at certain stages of production, in "the intrication of sensory positions and intelligible meanings", in which the work might seem to take its place. On the other hand, we might well argue that it tends *not* to be the case that these "sensory positions", or "intelligible meanings" are "put together", by the practitioner, either to the extent, or in the same sorts of terms, as those adopted, *after the* (performance) *event*, by the spectator/critic/archivist. They produce these in times, and in terms, that

are no longer those of the artist or expert practitioner. *Times* and *terms* of spectatorial productivity - let me make this clear - are thus significantly different from those of the maker and making, which means that in the case of the archive, a decision must be taken: should the archive material "make an [interpretative] appeal to presence beyond representation"? If we were to choose that option, Lyotard observes, "all one can expect from it is for it not to prevent the state of letting go by making itself too prominent" (Lyotard, 1988/1991). Are the (knowledge-)political implications, particularly for the university, clear at this point?

Lyotard, however, is nothing if not even-handed: his contrasting view, with regard to the work, is that the artwork (and in this context, performance) already involves "memorisation or conservation", because these are constitutive aspects of composition. Any work of art, on this basis, is "already necessarily an archive". It is already "a spatio-temporal organization, 'blocked', in some sense, to permit repetition and transmission". If this is indeed the case, then there is nothing alarming in the fact that the archiving of 'finished works' should take place, should find and take its place. 'The work', from this perspective, is already "territorialized", in Deleuzian terms, at that precise moment when it is judged to be ready, when it has achieved its third-person status as work ('it'). The archive, then, "far from being an extra [layer] … applied to spontaneous works to ensure their transmission and conservation", serves, instead, in the best of cases, to replicate and to foreground something of the work's already-existing "relation of mind to time and to space".

I would argue that even where performance work is identified as 'new', or 'challenging', it tends to remain consistent with - by irresistibly citing them - certain of the disciplinary conventions that inform it and on which basis others identify it. 'New dance' retains, by rearticulating them, certain of those conventions, however much it also proceeds to confront and/or elaborate them, and the 'new dance' audience remains by and large a dance/performance audience. The event status of the performance, meanwhile, is achieved through what might be called compositionally-specific foregrounding and repetition, which both marks temporally-significant moments, and allows the emphasis of other aspects 'against' that background of consistency-through-repetition. A further point might be made here, with regard to the emergent work in time: at that point where it achieves its object-status ('the work'; 'it'), it might well no longer be identical with 'the thing itself' that drives the expert practitioner as artist. The work, at this particular moment in time, is no longer the artist's 'thing itself', but a momentary and incomplete instantiation (Knorr Cetina 2001) of the artist's own ongoing enquiry into what Lyotard identifies as that particular "relation of mind to time and to space". That drive, as far as the professional artist is concerned (but not academics or students, whose drive tends to be differently directed), is effectively/affectively existential (Osborne 2000). That is, s/he 'has to' make work; but each apparently 'finished work', from this point of view, is no longer necessarily identical with that artist's ongoing enquiry - whence her or his renewed focus on the next work (she or he is, in this sense, a futurologist (Massumi 2002)) rather than the last one/s. The work in the archive (and the 'archivable'), in this sense, is no longer the expert practitioner's 'thing': it has broken with the artist, 'gone public', and others have intervened in its evaluation. Those others, often enough, are expert spectators and rather later again they are - potentially – performance archivists.

**4.** Two further linked points emerge, however, from Lyotard's apparently archive-affirming observation: the first is the matter of what philosophers have called "spectator theories of knowledge" (Rosenthal 1986), and "spectator knowledge positions", which inform much written performance analysis and critical reflection. The second is the tendency, promoted in Performance Studies in the university, to mistake performance effects, as experienced by spectators, for performance-making causes, specific to expert performance-makers. But spectators, as the term suggests, see what they can see: curiously enough, then, as far as performance disciplines are concerned, they are encouraged to speculate; and they are expected - and apparently expect - to seem to 'see more' (e.g. 'human' characters, rather more than actors; purportedly 'psychological' interiorities, as much as/inferred from exteriority). And 'the work' masterfully (or cunningly) triggers in spectators their agreement to produce the rest, generally in terms of a sign-posting 'in the work', by which I mean that certain performance elements are highlighted, in the work's composition, often by full or part- repetition. What the spectator can be 'made to' contribute 'to the work' can be omitted as such by the expert practitioner; it does not need to take its place in the highly economical economy of art-making – which does not mean, however, that it does not seem to 'be there', when the spectator takes on her productive role. In not a few instances, what's more, spectators will seem to see (as in "I see!") what practitioners may not have seen, do not/do not yet see in their own work on their own terms; and this 'not-yet-seen', of the expert practitioner, might well include the enigmatic, to which I referred earlier. What, of this pattern of seeing/seen/not seen/not yet seen, should be included in the archive? Who is equipped to and 'should' legislate on that inclusion/exclusion?

When we bring the time of making into the equation, however, it needs to be pointed out that even expert spectator/archivists literally can not see the multiple and different aspects of the making processes, nor even where expert decisions come from. If there are certain sorts of triggers 'in the work', planted there by expert practitioners, it is also the case that apparently 'the same trigger', part of a largely visual economy in the case of spectating, is non-identical with what practitioner-decision-makers see or intend. The latter work, primarily, instead, under the pressure of a deadline (a nice metaphor, this), in the realm of the material and of energy-sources, maintenance, and exploitation, and achieve this through a series of attempts, failures, and compromises. A Jungian analyst, as expert spectator, and similarly a feminist, will tend to 'see more', and do more with, what is 'seen' (by activating a number of retained interpretative apparatuses specific to the Jungian or feminist traditions), than does a practitioner who lacks or chooses not to engage that competence. Who then should archive 'the work' of expert practitioners? And when, precisely?

In the case of spectators substituting effects for causes, and mistaking the one for the other, you may be aware that there is a long 'knowledge tradition' that authorises this mistaking of the one – available to spectators - for the other; and reception theory (see for example W. Iser, 1978), in the late 1970s and the 1980s, re-authorised this sort of perspective and activity, lauding the supposed 'creativity' of the spectator. According to Lyotard, once again, writing in the 1980s, established rationalist tradition views "every event in the world" as "the effect of a cause". "[R]eason", according to that tradition, is understood to "consist… in determining that cause", by "rationalizing the given and neutralizing the future" (Lyotard, "Time Today",1988/1991). Let's retain the notions of the given and the new here; of the past and present of making, and making's futures, and – for obvious reasons - of rationalisation as a mode of production.

If much performance analysis and critical writing, taught in the university, is informed by spectator theories of knowledge, and entails the rationalisation, by expert spectators, of the given, and thereby the neutralisation of the future; and if much performance analysis still consists in the attempt to deduce (imagined, practitioner) causes from (real, spectator-experienced) performance effects, my question is this: what might a 'practitioner theory of knowledge', or 'practitioner-theoretical practices', consist of, and where, when and how do they work their work? Second – if we are actually concerned with these – how might expert spectator/archivists 'better' engage with performance-making causes? Next, what are the theories of expert composition that actually apply to an expert-practitioner-theoretical engagement *in and through expert practice*? How are these made available, if not 'in the work', and to what extent can they be extracted 'from it'? Who has/should have access to these, when, where and to what ends? If the expert archivist is also an expert spectator, positioned after the event of expert performance-making is over, my next question is this: to what extent, and how, can we avoid training her (as we tend to do in Spectator Studies, in the university) to continue to make those same, long-authorised and 'rationalist' mistakes?

**5.** Performance-making practices, as far as I have been able to tell, even when they are individually owned and individually signed, tend to be collaborative, negotiated between heterogeneous practitioner undertakings, and different types of expertise; they tend to a significant degree to be negotiated live, on the ground; they tend to take onboard the impact of contingent factors, of a noetic creative-problem-solving that seems to come from a nowhere of rational thought; and of happy as well as unhappy accident. But they are also conditioned and developed, immediately after, through the different logics of production and the production values that apply. They turn, significantly, and at particular stages, on discipline-specific coping strategies, which no writer, to my knowledge, has theorised; and at a later stage their emergence depends on that expert thematisation, by the signature practitioner, that allows a third person 'take' on what is emerging (the work as

'it'). They depend, as well, on what I have called the operations of expert or professional intuition (which are significantly different, in turn, from everyday intuitions, with which others confuse them).

What I find interesting about the constitutive operations of expert intuition, in the making process, is that they are often determinant, and depend on that kind of remembering that is central to expertise; but at the same time, they are immediately subject/subjected to the range of production logics that apply in the collaborative situation – which means, vitally, that they disappear as such. Disappeared as such, they cannot, then, be readily identified by expert spectators/archivists, who tend to have access only to their outcome. They can only be guessed at, well or less well, through the apparatuses to which a spectator, conventionally, has access. How might we archive the expert practitioner operations of expert intuition, of accident and contingency; and how to archive the constitutive impact of production logics on these, their own modes of intervention – in professional or expert production - and their ongoing negotiation with and tendency to transform the products of expert intuition, in one or another collaborative performance-making process? My final question, with which I end here, is this: how, if we cannot identify and archive these vital aspects of performance-making, can we proceed to claim that archiving is practitioner-friendly?

References:

- Deleuze Gilles. *Francis Bacon: The Logic of Sensation*. Trans. D. Smith. Minneapolis: University of Minnesota Press, 2003. (first published in French, *Editions de la Différence*, 1981).
- Hayles N. Katherine. *How we Became Posthuman*. Chicago: University of Chicago Press, 1999.
- Iser Wolfgang. *The Act of Reading: A Theory of Aesthetic Response*. Baltimore: Johns Hopkins University Press,1978.
- Knorr Cetina Karen. 'Objectual Practice', T. Schatzki, K. Knorr Cetina and E. Von Savigny (eds) *The Practice Turn in Contemporary Theory*, London and New York: Routledge, 2001.
- Lyotard Jean-François. *The Inhuman: Reflections on Time*. Trans. G. Bennington and R. Bowlby. Stanford: Stanford University Press, 1991. (first published in French, *L'inhumain: Causeries sur le temps*, 1988)
- Massumi Brian. *Parables for the Virtual: Movement, Affect, Sensation*. Durham & London: Duke University Press, 2002.
- Rosenthal Sandra B. *Speculative Pragmatism*. Amherst: University of Massachusetts Press, 1986.
- Osborne Peter. *Philosophy in Cultural Theory*. London and New York: Routledge. 2000.

Endnotes:

1 Adapted from Keynote Presentation. *Performance as Knowledge*. ResCen Seminar, Somerset House, London. 3 May 2006. On-line Version: www.mdx.ac.uk/rescen/archive/PaK_may06/PaK06_transcripts4_1.html (accessed 23.06.07)

2 Melrose Susan. www.sfmelrose.org.uk. In particular see (all accessible on-line 06.07.07): 'The Body in question: expert performance-making and the problem of spectator discursivisation'. April 2006; '... just intuitive ...' (keynote address). April 2005; 'The Eventful Articulation of Singularities – or, Chasing Angels' (version of keynote address). December 2003. 'the curiosity of writing (or, who cares about performance mastery?)'. Sept 2003.

**Marijke Hoogenboom** is Professor 'Art Practice and Development' at the Amsterdam School of the Arts, leading a suprafaculty research group that aims to provide a strong impulse to the interaction between the international state of innovative artistic practice and the teaching and research policy of the school and of the individual faculties. She has been one of the architects of DasArts since its foundation in 1993 and also works as a free lance dramaturge, curator and consultant for arts and education in The Netherlands and beyond.

# Conditions for research[1]

It is not self-evident that an art academy engages in professional research and deliberately extends its educational enterprise into unknown and untested ground. So why is it that the Amsterdam School of the Arts is deeply involved with Emio Greco | PC's project *New Ways of Notating, Documenting and Re-creating Dance*? And that throughout several stage developments we have cooperated across the institutional boundaries of teaching, exploring and art making? In the following essay, **Marijke Hoogenboom** contextualises and responds to these questions; and proposes a framework for the future of the research project.

The last five years have witnessed interesting developments in education policy in the Netherlands. Alongside traditional teaching practice, a series of research groups (or *lectoraten* as they are known in Dutch) are being funded. The express purpose of these groups is to expand and refresh current educational practice in art schools with current artistic research projects. The resulting initiatives – and particularly the work undertaken by my own group *Art Practice and Development* – do not in any way aim to imitate traditional academic models. Rather, a great variety of artists are invited to further develop their practical proposals and test out their individual methods at the Amsterdam School of the Arts.[2]

It was not that these new opportunities for artistic research projects were initiated or even called for by the artists themselves. The *lectoraat* scheme is purely a state intervention, which was introduced in the Netherlands around five years ago.[3] This was due to a worrying development in art schools and technical colleges, which were increasingly defining themselves according to the current labour market and dedicating too much of their application-oriented teaching to concrete job-training. To take the example of the performing arts, this means that courses in directing, acting, dance or dramaturgy often become stuck in traditional occupational images, barely contributing to contemporary developments or provoking innovative art forms. Teaching is based on that which has already proven its value and therefore belongs to the canon of knowledge that is generally accepted as being necessary to practising a certain profession or discipline within familiar contexts. In the worst-case scenario, students' abilities are only judged according to vocational rather than artistic practice, a minor distinction, which in my opinion is of fundamental significance in the reinterpretation of higher education in the Arts.[4]

This trend was of particular concern to the Ministry of Education and Science because:

– it led to an alarming move away from academic discourse within Holland's dual education system (i.e. the strict separation of universities on the one hand, and art schools and technical colleges on the other);
– Dutch art schools and technical colleges might not be able to stand up to the qualitative standards within Europe as required by the Bologna Agreement;
– publicly funded teaching became restricted to the predominant professionally operating systems and made a negligible contribution to social innovation.

The fear was of a downright paralysis of educational practice, insufficient ties to the contemporary art scene, widespread isolation from international developments as well as alienation from a social, economic and cultural reality undergoing dramatic change.
Accordingly, the aim of the later research offensive was formulated very firmly and was established as an *engine* of *innovation* in a dynamic mix of teaching, research and practice.[5] This forced the art schools to undergo comprehensive *upgrading* (despite not having the right to award doctorates, a privilege reserved for the universities) and they are now well on the way to developing a very specific alternative which is slowly beginning to present a challenge to academic activity. For in the lively debate regarding applied or artistic research, we have deliberately refrained from following the Anglo-Saxon model and have made a conscious effort to maintain the differences between the educational systems, preferring a productive coexistence of differing approaches.[6]

The *Art Practice and Development* working group is specifically concerned with the questions, methods and themes that artists approach us with if they wish to combine them with research opportunities. We assume that artists have long had their own, equivalent means of knowledge production, that they have appropriated research practices and that they should not necessarily be subjected to the conditions of the academic establishment's knowledge system. From the first *Bureau de Recherche* set up by the Surrealists, to Peter Brook's *Centre International de Recherche Théatrale* (CIRT), from Brecht's *Versuchen* to James Lee Byars' *World Question Center*[7] there has been a long tradition of lively artistic research which continues to this day, a testament to the need of artists to learn more about their own practice and to make their findings available to others. Artistic research has its own history, present and future. Correspondingly, as cultural critic Sarat Maharaj concluded in a detailed essay on *Artistic Research*: "Most of us must feel we have been doing it for years, without quite calling it like that..."[8]

Dance company Emio Greco | PC has been a very interesting partner from the beginning of our collaboration, as over the last few years it has consciously expanded its focus beyond the production or re-staging of artistic pieces. For a number of years the ensemble has, on the one hand, already contributed significantly worldwide to public debates about contemporary dance in its so-called *Dance & Discourse* Salons (which they have initiated in parallel to their international guest-performances). On the other hand, EG | PC has been around for ten years: veteran protagonist Bertha Bermúdez has left the stage (but not the ensemble), and choreographer and dancer Emio Greco also no longer chooses to perform in all of the pieces. The group now has to decide whether and in what way it can pass on or transfer its work to a younger generation and how it can maintain its repertoire. This is a problem the group shares with many contemporary choreographers and dancers.

As *artists in residence* at the Amsterdam School of the Arts, EG | PC in 2005-'06 finally got the long sought-after opportunity to examine the topic of *transfer* in an educational environment. This involved teaching their own methods of training and parts of their choreographies as well as discussing all issues bound up with the subject in three consecutive salons with national and international theorists, dramaturges, critics and students. Direct results of this joint undertaking include the current research project *New Ways of Notating, Documenting and Re-creating Dance*, and the *Accademia Mobile* – the company's creative training unit – which has operated since 2006.

For EG | PC, the question of imparting one's ideas and the need to gain an objective view of one's own art is inextricably bound up with the dilemma of dance as an ephemeral art, the material nature of human existence and its continual disappearance. Their attempt to locate and grasp that which is constantly vanishing in their work goes beyond the actual performance to include the artistic process involved in its creation, which is even less perceptible than the final product.

> "Once the performance is over, all that is at stake in the process of making, all investment in the process as well as the post-production life of the work, tends to fall into oblivion. Neither festivals nor theatre venues make the effort of presenting the work besides the performance as its actualized product. The knowledge acquired, the tools developed in the working process and in collaboration, artists carry along for themselves. Rare are the opportunities where the knowledge of the artists themselves, rational and methodological as well as subjective and experiential, can be shared with a wider public."[9]

*New Ways of Notating, Documenting and Re-creating Dance* is an attempt to create a particular system of notation which derives from the choreographic work of EG | PC, to safeguard its memory and understand and learn from its specific vocabulary and way of working. In the first phase, still during the residency, a documentary film was made about the *Double Skin/ Double Mind* workshop given in Vienna in the summer of 2005.[10] The resulting systematic elaboration of the workshop contents already contained significant elements of the later idea to create a complex digital resource in the form of an interactive installation, such as filmed dance movements, discursive descriptions of basic methodology (by dancers, choreographers and students, which are gathered in a glossary), as well as the edited and compiled presentation of years of teaching.

The interdisciplinary project team, which was formed for the purpose of taking up this second phase of research, starts from the assumption that the complex nature of dance cannot be adequately represented with a single technology. And in the joint working sessions, the various disciplines and sources of expertise throw light on each other and establish respective limits and needs for development.[11] This phase of *New Ways of Notating, Documenting and Re-creating Dance* will be completed with the publication of the prototype of Chris Ziegler's interactive installation, a DVD-ROM containing highly specialised notation work, and this book.[12]

In the third phase, which has already begun with additions to the team and new institutional partners, the project will devote itself to debating the difficult question of how means of recording not only serve to analyse and document works of art, but can also function as a type of "real-time feedback" (Scott deLahunta) and flow directly into the creative process again. This will be a significant step to take and will undoubtedly present a great challenge to the ensemble and the organisational form of our project. Artistic research is obviously not a soliloquy. If we - as art schools and cultural producers - want to take the potential of such ventures seriously, we have to continue to expand interdisciplinary and cross-institutional cooperation between teaching, science and artistic practice. Here at the Amsterdam School of the Arts - at least in the context of the given possibilities, that is the conclusion we have come to.

All URLs accessed on 01.07.07

1 The full version of this text will be published under the title 'Artistic research as an expanded kind of choreography in the work of Emio Greco | PC' in: *Knowledge in Motion*, Sabine Gehm, Pirko Husemann, Katharina von Wilcke (eds.), transcript Bielefeld, September 2007.

2 The working group *Art Practice and Development* was founded at the end of 2003. It operates on an inter-faculty basis, and with no fixed boundary between the school and its professional environment. Besides individual research projects, it has an artist in residence programme and a great many joint projects with venues, festivals and faculties. www.lectoraten.ahk.nl, www.artpractice.ahk.nl

3 This development, incidentally, is not limited to the Netherlands; Flanders is also experiencing an intensive process of academisation. The most prominent institutions in Flanders are the IvOK (Institute for Practice Based Research in the Arts) at the K.U. Leuven and the Platform 'Doctorate in the Arts' at the Universitaire Associatie Brussel (University Association of Brussels). associatie.kuleuven.be/eng/ivok/index.htm, www.vub.ac.be/english/infoabout/associatie/platform.html. In Switzerland, too, public policies of funding have now been very closely linked to research.

4 Ute Meta Bauer's collection of essays on new artistic approaches to higher artistic education is still topical: Ute Meta Bauer (ed.), *Current Approaches on Higher Artistic Education*, Vienna 2001.

5 For a complete overview of related research projects at art schools and technical colleges in the Netherlands see www.lectoren.nl

6 The debate focuses on the mode of research (and its relationship to art) as well as its knowledge content (and its distinctiveness) in the light of existing and generally accepted research methods. My colleague Henk Borgdorff, who leads the *Art Theory and Research* working group at the Amsterdam School of the Arts, has provided a very comprehensive account of this international debate on artistic research and the meta-theoretical discourse. www.ahk.nl/lectoraten/onderzoek/debate.pdf

7 As part of a ritual performance James Lee Byars incessantly asks fellow artists what question they ask themselves: "What question contributes to your own evolving sense of knowledge?" www.edge.org/questioncenter.html

8 Sarat Maharaj, 'Unfinishable Sketch of 'An Unknown Object in 4D': scenes of artistic research'. In: Annette W. Balkema, Henk Slager (eds.), *Artistic Research*, Amsterdam/New York: Rodopi. 2004, p. 39.

9 Igor Dobricic and Bojana Cvejic, 'Before and After the Show: unfolding the working process': part of the cultural programme *Almost Real* of the Alkantara Festival, Lisbon, June 2006. www.almostreal.org

10 *Double Skin/Double Mind,* a documentary film by Maite Bermúdez, premiered at the Cinedans Festival in Amsterdam, July 2006.

11 Media and approaches include: Bertha Bermúdez and Emio Greco have internalised the dance of the company and are the driving forces behind the project; Scott deLahunta, author and dance theorist is comparing four current choreographic experiments with the aim of producing a choreographic resource; Frédéric Bevilacqua is developing the *Gesture Analysis Program* at the Paris IRCAM Institute; Marion Bastien and Eliane Mirzabekiantz are contributing the well-known dance notation systems of Laban and Benesh; and finally Chris Ziegler, who will bring all these different perspectives together in this interactive design.

12 Dutch Dance Days 2007, www.nederlandsedansdagen.nl

# Credits Notation Research Project

Concept: Emio Greco, Pieter C. Scholten, Bertha Bermúdez
EG | PC research & project co-ordination/ production: Bertha Bermúdez
Research advisor: Scott deLahunta
Production assistant: Melissa van Geldere
Administration and finance manager: Annet Huizing

**Dance and Media: DVD-Rom and Installation**
Concept and realization: Chris Ziegler, Frédéric Bevilacqua, Bertha Bermúdez
DVD-ROM and Installation design: Chris Ziegler
Gesture Follower: Frédéric Bevilacqua[1]
Laban Notation: Marion Bastien
Benesh Notation: Eliane Mirzabekiantz
Film director: Maite Bermúdez
Cognition research advisor: Corinne Jola
Music design: Pieter C. Scholten
Sound excerpt from: *Clapping Music* by Steve Reich © Universal Edition Ltd. (London)
Camera: Katharina Pohlmann
Texts: Bertha Bermúdez, Marion Bastien, Eliane Mirzabekiantz, Frédéric Bevilacqua, Chris Ziegler and Scott deLahunta
Dancers EG | PC: Sawami Fukuoka and Nicola Monaco
Costumes: Clifford Portier
Technicians: Henk Danner, Floriaan Ganzevoort and Melissa van Geldere

**DS/DM Documentary**
Director: Maite Bermúdez
Concept: Maite Bermúdez, Emio Greco, Pieter C. Scholten
Production director: Bertha Bermúdez
Editing- Animations: Viviana García-Besné
Cinematography: Javier Allegue
Sound Editor: Michal Zasowski
Costumes EG | PC: Clifford Portier
Production assistants: Annet Huizing, Ingrid van Schijndel, Henk Danner, Floriaan Ganzevoort
Dancers EG | PC: Nicola Monaco, Sawami Fukuoka, Barbara Meneses, Suzan Tunca, Bertha Bermúdez and Emio Greco
Music design: Pieter C. Scholten
Film Material EG | PC: Erik Lint
Graphic Design EG | PC: Katja van Stiphout

With thanks to: Netherlands Media Art Institute Montevideo/Time Based Arts, Annet Dekker, Gaby Wijers; Amsterdam School of the Arts, Jeroen Fabius, Yvonne Boekhout; Film Media Department Amsterdam School of the Arts, Paul van der Ploeg; AHK/Lectoraat ARTI group; Cinedans, Janine Dijkmeijer; Benesh Institute Paris, Romain Panassié; Dutch Dance Days, Leontien Wiering; ImPulsTanz Vienna, Rio Rutzinger; Michael Zellinger, Lore Heuermann, Simon Mayer, Paea Leach, Sung-Im Her, Vraja Keilman, Andrea Nagy, Jung-Sun Seo, Jelena Kostic, Elena Molon, Roberta Pitre, Hadar Younger, Amber Stephens, Emmanuel Beaudoin, Christina Marti, Jung Ju In, Tanja Raman, Claire Lissaman, Roser Lopez Espinosa, Ellah Nagli, Sonja Pregrad, Sao Castro, Shani Garfinkel, Rachel Ogle, Athina Lampadaridou, Eva Himmler, Marian Fernandez, Xalbador Marticorena, Maaike Bleeker, Saskia Kersenboom, Gerco de Vroeg, and the EG | PC team

Project supported by: Prins Bernhard Cultuurfonds

Emio Greco | PC receives funding from: the Dutch Ministry of Education, Culture and Science and the Dutch Fund for Amateur Art and Performing Arts

Co-production with: Amsterdam School of the Arts, research group Art Practice and Development, Marijke Hoogenboom

1 Gesture Follower is developed by the Real Time Musical Interactions team, IRCAM Centre Pompidou - CNRS STMS. Copyright IRCAM. See inside the DVD for full credits.

IRcam

Produced by:

Amsterdamse Hogeschool voor de Kunsten

eg | pc

# Colophon

Editor: Scott deLahunta
Authors: Marion Bastien, Bertha Bermúdez, Maite Bermúdez, Frédéric Bevilacqua, Maaike Bleeker, Franz Anton Cramer, Scott deLahunta, Marijke Hoogenboom, Corinne Jola, Susan Melrose, Eliane Mirzabekiantz and Chris Ziegler
Text editing: The Loft v.o.f., Amsterdam Nils Voskuil, Annet Huizing
Graphic design: Katja van Stiphout
Print: Veenman Drukkers, Rotterdam

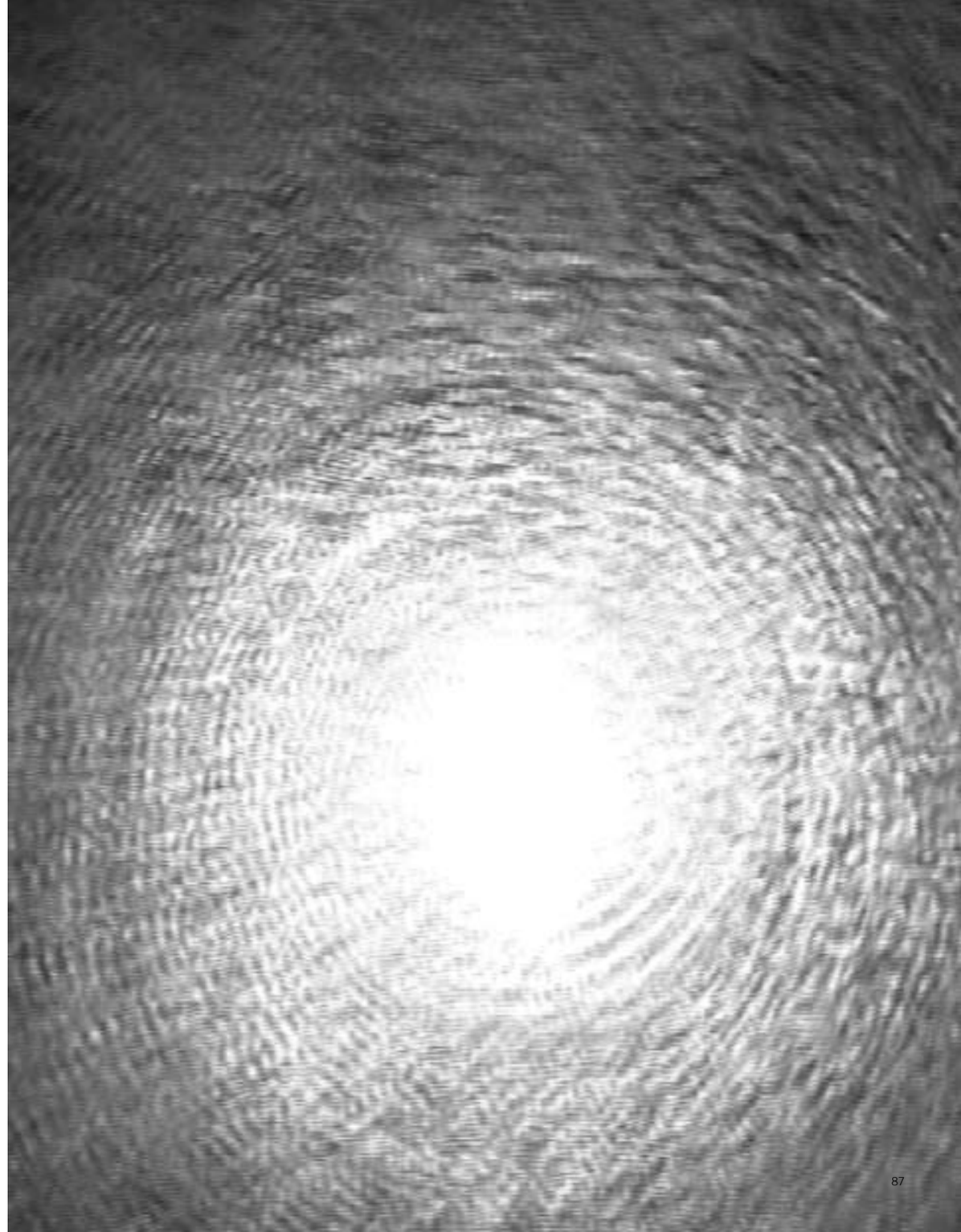
Photographer Credits:
– Maite Bermúdez (videostills): 2, 4, 10, 18, 19, 22, 25, 47, 56, 57, 68, 69, 79, 83, 85, 87
– Frédéric Bevilacqua/ IRCAM (screenshot): 28
– Franz Anton Cramer: 15 (*Systematik* © Tanzarchiv Leipzig)
– Thomas Lenden: cover, 30, 32, 33, 39 (Fig. 11), 40, 41
– Chris Ziegler (designer's screenshots): 35, 36, 37, 38, 39

Permissions:
Page 64 "Example of a study with musicians...": Reprinted from Baumann, S, Koeneke, S, Schmidt, CF, Meyer, M, Lutz, K, Jancke, L, 'A network for audio-motor coordination in skilled pianists and non-musicians', *Brain Research*, 1161, pp. 65-78. © 2007, with permission from Elsevier

With thanks to: Emio Greco, Pieter C. Scholten, Marijke Hoogenboom, Jeroen Fabius, Yvonne Boekhout and the EG | PC team

Published by: Emio Greco | PC and the Amsterdam School of the Arts

All texts and images reproduced by permission of the authors and artists

All rights reserved Emio Greco | PC, Amsterdam School of the Arts, authors and artists
© 2007, EG | PC and AHK
ISBN: 978-90-810813-2-0

Emio Greco | PC
Witte de Withstraat 117-III
1057 XR Amsterdam
info@egpc.nl
www.emiogrecopc.nl
Tel : + 31 (0)20 6167240