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'Constructing Memory: creation of the choreographic resource'

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In Autumn 2006, I was co-editing this issue on Digital Resources for <u>Performance Research</u> and submitted this article which was originally developed for the 'Digital Resources for Humanities and Arts' conference at Dartington College of Art in September 2006. Norah Zuniga Shaw contributed the section on the project of William Forsythe which she was working on.

<u>Performance Research</u> is a specialist journal published by Routledge that promotes a dynamic interchange between scholarship and practice in an expanding field of performance. Interdisciplinary in vision and international in scope, its emphasis is on research in contemporary performance arts within changing cultures. Source: http://www.tandf.co.uk/journals/titles/13528165.asp (accessed 7 May 2010).

Constructing Memories
Creation of the choreographic resource

SCOTT DELAHUNTA AND NORAH ZUNIGA SHAW

INTRODUCTION

There is an inherent and well-debated tension existing between the live dance performance and its documentation or recording. This has to do with the unmediated relation between performer and audience and how this combined presence is entangled with the requirement that the dance should be continually disappearing. If a work of choreography leaves anything more than traces or fragments behind in memory, then it is not danced choreography. The materiality of dance is inextricably bound up with its own immaterial dimension.

These are the normative features of this tension between dance and its documentation in which the dancer's presence and vitality becomes almost a cliché, i.e. the videotape of a performance can never be 'the real thing', any recording, whether computer based motion capture or hand written notation, can never achieve the status of the 'live' work. However, it does not take long before this gap between presence and absence is converted into something else meaningful. Performance and other scholars and writers, intrigued by dance's vanishing, enter into philosophical debates about writing, bodies, stillness, texts, thought and gesture. Anthropologists, ethnographers, preservationists and librarians of culture all consider the dance's recording or document, as flawed as it may be, as the vehicle for furthering aims and goals of the institutional domain whether they are research in higher education,

public understanding or promotion of heritage. Conventional dance reconstruction has a long history of creative interacting, even if problematically, with prior productions. And to some contemporary dance artists, the emphemerality of dance is self-evident to the extent that they make work reflexive of this condition.[1]

However, there is a shift to this story marked by two poles. One pole is a change in the notion of what constitutes a valuable resource for a researcher seeking insights in the interstices between knowledge disciplines. And it is here that artistic creativity is attracting attention from other fields and subsequently gaining value. The emphasis of this attention in some circumstances has moved subtly away from the art object or performance itself towards its creation. The second pole is the artists themselves opening up and sharing their creative process, perhaps sensing and looking to interact with this increasing external interest or seeking to understand themselves better, a self-demystification of one's own practice in order to sustain continuous innovation. In either case, an overall result of this shift is that artists and others are increasingly producing and consuming research resources that emerge out of the making part of the choreographic practice. Even if this means applying a particular way of looking at what gets made, as with the Forsythe project described further in this essay.

Given this situation, one could argue that while the dance may disappear, a valuable

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[1] On dance's disappearance see the writings of André Lepecki, Jacques Derrida, Mark Franko, Peggy Phelan, Alain Badiou; for dance's preservation see Johnson, Catherine, J. and Allegra Fuller Synder. *Securing Our Dance Heritage: Issues in the Documentation and Preservation of Dance.* Council on Library and Information Resources, July 1999; for reflection on dance reconstruction see Thomas, Helen. Reconstruction and Dance as Embodied Textual Practice in Carter, Alexandra (ed.), *Rethinking Dance History: A reader.* London and New York: Routledge, 2004, pp. 32–45; for contemporary artists making work about dance's disappearance see on the work of Vincent Dunoyer: Laermans, Rudi, Hugo Haeghens, Gerald Siegmund. *Mediale Bemiddelingen. Over Vincent Dunoyer en anderen.* Cultureel Centrum Maasmechelen, 2003.

[2] This can be found in the concept of Creative Industries, which focuses on exploiting the intellectual property found in products of cultural creation.

3 Susan Melrose and Paul Carter are writers who take a critical position relative to university based practice-based research. Both emphasise the need to address creative practice in its own terms and from the perspective of the artist as different from the professional spectator or academic. Related materials can be found on Melrose's website: http://www.sfmelrose.u-net.com/ and in: Carter, P., *Material Thinking: Collaborative Realisation and the Art of Self-Becoming*, Melbourne, 2004.

4 Many thanks to Franz Anton Cramer for thoughts written here stemming from a recent discussion.

5 Siobhan Davies Dance http://www.siobhandavies.com/

6 The NRCD has created similar resources for other UK choreographers, e.g. Lloyd Newson and Shobana Jeyasingh (http://www.surrey.ac.uk/NRCD/). To read about the digital archive initiative: http://www.ahrc.ac.uk/awards/casestudies/siobhandaviesdance.asp.

7 The concept of a simple digital video annotation tool dates back to Autumn 2001, when Davies herself was a participant in an intensive meeting in London called Software for Dancers: http://www.sdela.dds.nl/sfd. The idea became reality when a small amount of funding was obtained in 2004 to develop RotoSketch: http://thesystemis.com/rotosketch/

8 Sarah Warsop personal email communication 10 November 2006.

9 Emio Greco|PC http://www.emiogrecopc.nl/

creative resource remains. More than a mere 'trace' this resource is useable and generative in a variety of ways. It can be transmitted and disseminated; it is transferable and renewable; and it can carry compressed information that can feed back into the choreographic process. There are complex issues here. Creativity is far from neutral in particular as manifest in the current goal-directed (teleological) desire to make it useful in some non-art sectors.[2] And furthering the understanding of creativity is no less charged with ethical issues than the study of the brain and consciousness. However, it is not the aim here to critique institutional policy or embedded beliefs. Rather we wish to ground the remainder of this essay in the creation of choreographic resources from the perspective of the artist, addressing these issues from within the creative practice itself.[3]

THE CHOREOGRAPHIC RESOURCE

Siobhan Davies, Emio Greco, Wayne McGregor and William Forsythe are four of the most prolific and successful choreographers practicing today. Their invention of significant contemporary dance works has produced a rich body of unique materials related to choreographic creation and production. These materials are evolving as the artists continually seek new methods of making, with the aim not to repeat and to avoid fixed procedures and forms. These materials and the artists responsible for them have achieved the status of 'resource' for researchers not only from the performing arts, but also from other disciplines including architecture, music, philosophy and the cognitive sciences. As an aspect of this achievement as well as the desire to 'step back' from the body of materials they have created, these artists and the organisations that have been built up around them have begun to think or rethink in some cases how to create, manage and disseminate their choreographic resources.[4] The focus of this rethinking tends to oscillate between the establishment of an archive and how to fold resources back into

their own artistic work. Their approaches can be described as 'necessarily unique' since the focus is on individual artists actively engaged in making original works. At the same time, some of the methods used could be described as shareable even if they comprise newly invented approaches.

DYNAMIC DRAWINGS (SCOTT DELAHUNTA)

Artist Siobhan Davies
Organisation Siobhan Davies Dance[5]

The choreographic work of London-based choreographer Siobhan Davies has been available as 'resource packs' from the UK's National Resource Centre for Dance for several years. And recently arts and humanities research funds have been provided to put 'the collected works of Siobhan Davies Dance . . . into an online fully searchable digital archive'.[6] The resource creation team for the digital archive project is currently being assembled. They will face a range of technological, methodological, educational and artistic challenges. It will be interesting to see what connections are made with the following initiative in rethinking the teaching of repertoire, the transmission of creative process and the development of a digital tool to augment dance making.

Under the heading of the Bank Project, the Siobhan Davies Dance organisation annually brings together company dancers and a small number of experienced professional dancers to research making processes. Each year, the Bank Project takes a dance from the existing repertoire for the dancers to work with. However, rather than learning the finished performance as one might expect with repertoire, the Project takes as a starting point the original ideas, images, questions and tasks that informed the work's creation. This gives the dancers who are not in the company the chance to experience 'the creative working methods of the company' through generating their own materials; and gives the company dancers a

chance to revisit and reconsider making methods.

The Bank Project 2006 was used as a context for a weeklong development session of RotoSketch; a software tool designed to augment the choreographic process.[7] The aim of the software tool is to make it possible for a choreographer to annotate video playing in real-time. The prototype has a small set of features that make it possible to record a phrase of movement material and then play it back on a portable tablet computer while drawing directly on the moving image. The choreographer/dancer can then use the features to explore different relationships between the action and time of the drawing and the trace it leaves in relationship to the movement. For the Bank Project the sketchbook was introduced into the studio at the point when sketchbooks and writing tools were already in use [see right]. One of the company dancers, Sarah Warsop, had these remarks about using the sketching tool:

> Transferring the information into a different medium allows you to see or 'resee' what you've done. To be able to stand outside the movement and look at rhythm, structure, and shape (shape as a moveable thing, and a static thing), could allow you to go back into the movement with new information. [. . .] The act of sketching although still physical lets the mind make different links and associations and therefore the choices made might be unusual and unexpected.[8]

Warsop's comments indicate is that using the sketching software helps to simultaneously capture and extend the trace of the gesture physically through the drawing action and expand the space for imagined, creative gestures. At the same time, the drawn images are themselves immediately digitized and as such constitute an unusual document of live performance; one that contains a range of information not only about the mark itself, e.g. thickness and length, but also its creation, e.g. speed and acceleration. This raises intriguing possibilities about the nature of this material in the creation of choreographic

resources and in relation to the searchable digital archive initiative mentioned above.

GIVING NAMES (SCOTT DELAHUNTA)

Artist Emio Greco and Pieter C. Scholten
Organisation Emio Greco|PC[9]

In Amsterdam, the dance company Emio Greco|PC is researching ways to create an information resource derived from their creative work from which they, their performers, other artists and designers, researchers and thinkers might draw. The impulse for this comes from their need to 'meet new developments in movement' with adequate descriptions, notation, documentation and analysis. The

• Figure 1. Joanne Fong and Matthias Sperling using RotoSketch. Siobhan Davies Studios, London, June 2006.

seeds of this research could be traced to the start of the Salons in 2003 when EG|PC began a series of informal discussions with the aim to contribute to the development of a new discourse on dance grounded in 'the experience and expertise of the dance maker and in close connection to the practice of dance making'.[10] From within and in parallel to this initiative several themes related to the idea of information resource emerged such as repertoire and archive, transfer, authenticity, reconstruction and renewal. From these further questions were derived, for example: how to create a 'living archive' based on principles of movement and choreography that are constantly evolving; what notation system can capture inner intention as well as the outer shape of

[10] Bleeker, Maaike. 'Questions of Movement and Meaning': Emio Greco/PC's Salon Dance & Discourse at The Anatomical Theatre Revisited. Salon Introduction (unpublished). April 2006.

[11] 'Dance and new media: new ways of creating and documenting dance; new ways of creating and documenting dance'. EG|PC Notation/Archive Interdisciplinary Research Project. Cinedans. De Balie, Amsterdam. 2-3 July 2006. Invitees: Marion Bastien (FR), Bertha Bermudez (NL), Maite Bermudez (ES), Frédéric Bevilaqua (FR), Scott deLahunta (NL), Bianca van Dillen (NL), Carolien Hermans (NL), Corinne Jola (UK), Eliane Mirzabekiantz (FR), Chris Ziegler (DE).

[12] Fabius, Jeroen (2007) Looking Back, Transfer, and Collectivity in *Company in the School: between experiment and heritage*. EG/PC and ARK, Amsterdam: 20.

[13] *Double Skin/Double Mind*. Documentary Film. Director: Maite Bermudez. Premiered at the July 2006 Cinedans Festival.

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14 IRCAM Gesture Analysis/Real Time Applications: Frederic Bevilaqua, Nicolas Leroy.

15 Random Dance, http://www.randomdance.org/

16 Badiou, Alan. *Handbook of Inaesthetics*, Stanford, 2005: 66.

17 Choreography and Cognition http://www.choreocog.net. See extensive documentation on line. Full articles: Scott deLahunta and Philip Barnard, 'What's in a Phrase?', in *Tanz im Kopf/ Dance and Cognition*, ed., Johannes Birringer & Josephine Fenger, Jahrbuch der Gesellschaft für Tanzforschung 15, Münster: LIT Verlag, 2005, pp. 253–66; Scott deLahunta and Phil Barnard. 'Densities of Agreement' (co-authored with Phil Barnard, Ian Nimmo-Smith, Jennifer Potts and Cristina Ramponi). To be published in *Dance Theatre Journal* 21(3) (Autumn 2005).

18 See Interview with Wayne McGregor in 'Augmenting Choreography: using insights from Cognitive Science', co-authors: Phil Barnard, Wayne McGregor. In Jo Butterworth and Liesbeth Wildschut (eds.), *Choreography in Contexts: Critical Perspectives on Choreographic Practice*, Andover, New Jersey: J. Michael Ryan (upcoming 2007), pp. [pages?].

19 Forsythe Company http://www.frankfurt-ballett.de/

20 See the Foundation Mission Statement for quotes. Additionally the Foundation is setting up the William Forsythe Archive: current projects

gestures and phrases; how to analyze and represent open processes in relation to artworks.

Over the last two years, these questions have become more focused and transformed into a series of practical interdisciplinary investigations being conducted within the frame of an extended research project. Generally referred to as 'notation research' and with the coordination of company member Bertha Bermudez, the project now organises direct encounters with specialists from various fields of knowledge interested in movement and its analysis. The aim is 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. This encounter period was launched at a two day meeting in early July 2006 in Amsterdam to which a group of individuals were invited to present their research into dance notation systems, cinematography and film making, computer based motion tracking and gesture analysis, interactive design to enhance understanding of dance and the scientific study of the brain's perception of movement.[11]

In order to better understand how these different approaches come together, it is useful to return to the practice from which these questions derive. Greco as the performer and Scholten as the dramaturg have a unique choreographic collaboration stemming back to their first work together, a 1996 solo for Greco titled Bianco. Having performed in most of the works until now, Greco is 'gradually stepping back'.[12] This is not unusual for contemporary choreographers, who often start making work to be performed by them either in solo or with a small ensemble. Gradually invitations to dancers to join this process evolve into a selection procedure guided by a feeling for the type of performer the choreographer likes to work with. Eventually some kind of training or indoctrination for new dancers into the

approach of the choreographer (in the case of EG|PC two individuals) may be organised.

Therefore, alongside the Salons, the need to develop a more explicit information resource to help transfer or transmit movement knowledge to new performers also provided a research starting point. One result is an extensive glossary of terms relevant to their creative working process. Divided into 'inside' and 'outside', the glossary explores the range of possible meanings of a movement concept, such as *speed*, mingling those most relevant to Greco and Scholten with its other connotations. This exercise in giving names also evolved in the context of the movement workshops Greco and Scholten have offered under the title *Double Skin/Double Mind* since 1996. Working closely with Bermudez, Greco and Scholten have recently made a selection of seven principles that underlie the work and are always part of the preparation for creating and performing. Assigned names such as Breathing, Jumping, Expanding, and Reducing, these principles have been collected and exposed through the making of a documentary film based on the workshop/ that took the name of the workshop.[13]

Within the overall project this documentary film and its making represent one approach and some possible solutions to the questions of the 'notation research' project. It also exposed some of the inherent weaknesses of naming and categorisation, which are under consideration. The most recent encounter was October 2006 with the Gesture Analysis group at IRCAM in Paris where two of these principles of movement, Breathing and Jumping, were recorded using a system of sensors which measure various changes over time such as velocity, spatial orientations and displacement.[14] The data from these sensors was analysed in the computer to produce a learned representation of the movement. This model can be further analysed in direct comparison with the dancer's movements to look for patterns that cannot be seen by the human eye [see Figure 2]. This research will continue along several lines of
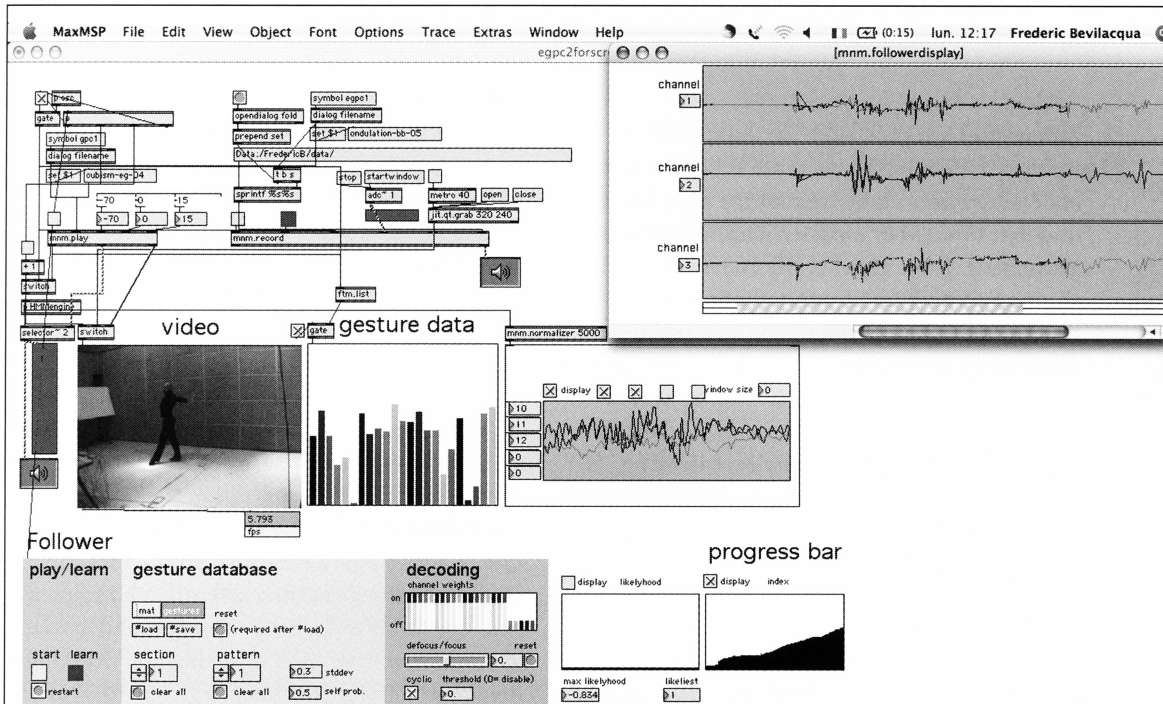
• Figure 2. Screenshot from Frederic Bevilaqua's gesture follower software program. © IRCAM.

enquiry including the idea of creating a gesture archive in the computer, a digital corpus of movement.

There are several 'notation research' encounters with individual researchers and groups planned for this year. Each session will build on the developments of the previous one, seeking to further refine the understanding of what these approaches separately and together offer to the overall research project. This shared approach to movement research, bringing different disciplines from arts, technology and sciences together, has the potential to further our understanding of human movement in all its creative complexity. One of the challenges for Emio Greco|PC is to integrate insights from these other domains into the physically and philosophically charged creative foundations of the company's work. Essential to this is the direct involvement of Bertha Bermudez who brings an extraordinary physical understanding to the process based on her long experience of making and performing the works of the company. The creation of choreographic resources relies on this corporeal knowledge to remain close to the practice of dance.

PHYSICAL THINKING (SCOTT DELAHUNTA)

Artist Wayne McGregor
Organisation Random Dance[15]

As mentioned in the introduction, philosophy is known to use dance's disappearance for its own contemplation of concepts such as time, thought and gesture. For example, philosopher Alain Badiou has written a small essay titled 'Dance as a Metaphor for Thought' in which he describes the knowledge of the 'true' dancer as 'technical, immense and painfully acquired'. However, for Badiou a 'genuine instance' of dancing can only occur when this form of intelligence is cast aside so that the performer can become 'the miraculous forgetting of her own knowledge of dance'.[16]

Philosophy may proceed to explore dancing and thought through the careful parsing of concepts. But for the choreographer-dancer, the notions of knowledge, intelligence and thinking are combinable with the body, mind and movement in a number of ways. For example, to the choreographer-dancer the notion of 'physical thinking' is self-evident, and equally axiomatic are 'choreographic thought' and

for the Archive include digitizing more than 3000 hours of video footage and a research project to develop and prototype new tools and interfaces to access the archive using the existing dance *Loss of Small Detail* as a case study. This case study is being conducted by a partnership between Laban, The Forsythe Foundation and Liquid Reader. Liquid Reader is an initiative by Mike Phillips and Ric Allsopp the Institute for Digital Art and Technology (i-DAT) and Performance Research to more systematically explore the potential of digitization (interactive multimedia, etc.) to make performance research related material accessible in alternative formats [see DVD supplement to this issue].

[21] William Forsythe, transcript from New York City meeting September 2006.

[22] From 'I can dance again', Sylvia Staude interviews Frankfurt-based choreographer William Forsythe, 21 April 2005. For SignandSight.com: http://www.signandsight.com/features/119.html

[23] William Forsythe, transcript from New York City meeting September 2006.

'kinaesthetic intelligence'. In the experience of making and doing dance, there is no inherent contradiction in claiming that the body knows and that thought or ideation manifests through movement. There is generally no need to explain this shared terminology to other dance practitioners, but to non-dance and non-arts disciplines, it can provoke confusion. It is at this meeting point with another discipline where the concept of 'physical thinking', explored for its contradictions and asymmetries, can bring important questions and approaches to bear on the creation of the choreographic resource.

In Choreography and Cognition, a project initiated by London-based choreographer Wayne McGregor, the overlapping of descriptions of intelligences and thinking processes was critical. This project involved intensive collaborative research between McGregor, his dancers and a number of cognitive scientists who were invited to create experiments related to the choreographic creation process.[17] Alan Wing and Kristen Hollands used motion capture technologies to record and visualise data to explore their question: 'what frames of reference are dance movements controlled in,

what are the crucial sensory systems for describing these frames of reference and how might selected disruptions or perturbations help to test this'. Alan Blackwell studies the cognitive dimensions of design and notation systems using analytic methods from a range of fields including experimental psychology and design research. His project involved collecting notebooks and scores from McGregor and four of the dancers, and using some of these analytic methods to discover where McGregor might experience the limitations of his design tools [see Figure 3]. And Tony Marcel used an interrogative approach in the studio that was more dramaturgical than scientific; blurring the boundaries between methodologies and distinct (discipline bound) ways of seeing and thinking. Reluctant to refer to himself as a scientist in these circumstances, he referred to Wayne's rehearsal process as another way of 'doing psychology'.

Notwithstanding Marcel's rich provocations, the collaboration triggered a lot of questions and McGregor was often asked to explain how he, as an artist, benefited from working with the scientists. His responses fell into two

• Figure 3. Alan Blackwell's analysis of notebooks from Wayne McGregor and Laila Diallo.

Wayne (page WN17)

Laila (page LN20)
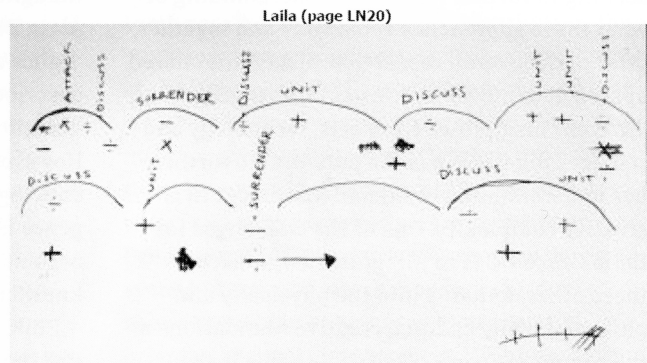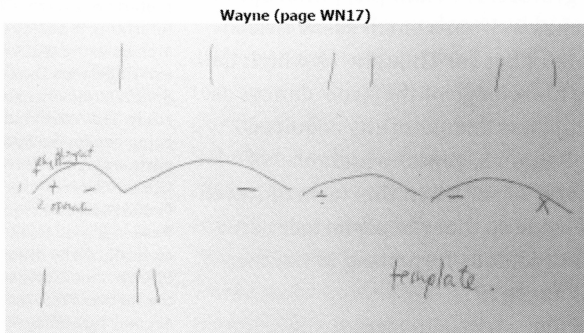
Wayne: Description; Represents **An operation, physical**; Basic objects **Words, numbers in circles, graphic sketches**; Metric space **transformation, mapping across the body**; Object relations **Divided by dancers in groups**; Attribute relations **Bent and straight lines**; Correspondence: object= **xxxx**, attribute= **xxxx**, structure= **xxxx**.

Laila: Description **A progression**; Represents **Floor pattern**; Basic objects **More and less symbols, labels of people**; Metric space; Object relations **Names of people are near corresponding sections**; Attribute relations **xxxx**; Correspondence: object= **xxxx**, attribute= **xxxx**, structure= **xxxx**.

Wayne: Description **Phrase marks with instructions, operations**; Represents **Operations open to interpretation, maybe a duet**; Basic objects **Phrase marks, arrows, words, symbols**; Metric space **Linear left to right, then down**; Object relations **Symbols placed freely, indicate interventions in a phrase. Words have choreographic meanins from a rule base**; Attribute relations **Symbols are functions of moving, what, where, when, how**; Correspondence: object= **metaphoric: multiply and divide gestures**, attribute= **metaphoric: vertical words may show intersection**, structure= **xxxx**.

Laila: Description **Like one of Wayne's**; Represents **Phrasing, words for the values given to symbols**; Basic objects **Operations**; Metric space **Time within phrases**; Object relations **An extra layer**; Attribute relations **Orientation of words doesn't matter**; Correspondence: object= **xxxx**, attribute= **xxxx**, structure= **xxxx**.

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categories. Firstly, making use of ideas taken directly into the studio to generate new material. This occurred when the science experiments provided a 'practical puzzle for the body and the brain to solve. The *process* of solving the puzzles, the time it took to see the body and brain attempt to come to terms with the difficulty and the ensuing solutions provided the most useful information to capitalize on in the studio'. Secondly, McGregor speaks of a less direct application of the insights gained during the collaboration in what he refers to as the 'conceptual frameworks, discussions, debate, explanation and dialogue that surround the practical events themselves. This transfer of knowledge(s) permeates the process in many fundamental ways'.[18] In either case, the philosophy of disappearance was noticeably missing in this bringing together of cognitive science and dance-based understandings of movement and thought.

The Choreography and Cognition project generated a very large pool of insights and a wide range of fresh descriptions related to dance analysis and creation. Additionally essential tools for interdisciplinary art and science collaboration were collected. The next phase of McGregor's research into the choreographic process and the many 'intelligences' involved in dance making will take place during a research residency at the University of San Diego that will bring him into close contact with researchers in the fields of psychology, cognition and computer science. The aim is to start to generate and schematize a more detailed description of his creative thinking process. Additionally, the research will engage with specific questions about documenting (and archiving) creation processes in relation to the design of experimental protocol including control conditions and data collection.

The ultimate aspiration of McGregor and his collaborators is to build an artificially intelligent and autonomous choreographic agent (ENTITY). Artificial Intelligence and Artificial Life research has revolved around the notion of building something as a way of understanding it. Building ENTITY is envisioned as a means to extend and broaden understanding of the unique blend of physical and mental processes that constitute dance and dance making. This ostensibly impossible project will require not only further exploration of the multiple descriptions of choreographic thinking and productive cooperation with related scientific perspectives; but engagement with other understandings of what it is to think, to move and to create.

BALLET AS INFORMATION AESTHETICS (NORAH ZUNIGA SHAW)

Artist: William Forsythe
Organisation: The Forsythe Company and the Forsythe Foundation[19]

The video playing on the wall shows an empty stage. Three architects, a designer, an engineer, a philosopher, and a cognitive psychologist sit waiting and watching as suddenly the video image is filled by a rush of dancers dragging twenty heavy steel edged tables. The dancers then efficiently and calmly arrange the tables in a grid and depart. Two men begin curving their bodies in and around the hard surfaces, reading each other, moving with liquid control and slicing through the space in abrupt waves of activity. Two more enter and then another and another until 17 dancers are flying, sliding, reaching, and twisting their bodies within, above, and under the grid. Complexity builds and chaos seems ever present but a system is evident in the dancers' attention, in moments of alignment, and in patterns of activity. What the viewer can't know but can sense is that the dance is controlled by a complex array of cues and movement structures that challenge and stimulate visual perception. It is a set piece of choreography but is always changing particularly in relation to time, but also in the addition or subtraction of dancers and insertion of new material. The piece is William Forsythe's *One Flat Thing, Reproduced*, and the scholars

**• Figure 4 (opposite).
overhead shot of *One Flat
Thing, Reproduced.*
Bockenheimer Depot,
Frankfurt, April 2006.**
Photo: Thierry de Mey.

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Michael Ryan.

Fabius, Jeroen (2007)
'Looking Back, Transfer
and Collectivity', in
*Company in the School:
between experiment and
heritage*, EG|PC and AHK:
Amsterdam.

watching it are part of the interdisciplinary working group creating a new interactive animated score for it.

William Forsythe has been engaged in creating links between dance and other intellectual traditions throughout his career. Building on this, he has recently established The Forsythe Foundation with the aim of 'advancing the art of dance by promoting critical thinking in dance education and practice'. Forsythe is already known for having made the CD-ROM *Improvisation Technologies: A Tool for the Analytical Eye*, which forged new ground through its use of effective graphic visualisation and its reception in fields outside of dance, for example architecture. This inspired the Foundation to focus on interdisciplinary research to 'develop more precise and accessible methodologies for communicating choreographic ideas'. The aim is to create multiple approaches to documenting dance that acknowledge the complexity of choreographic thinking, while increasing its cross-disciplinary intelligibility, and defining new territory for dance studies.[20]

In May 2005 somewhere in the transnational spaces between Ohio, Frankfurt, Paris, Amsterdam, and New York, connections were forged between the Forsythe Foundation, the Ohio State University Dance Department and Advanced Computing Center for the Arts and Design to establish an interactive media project focusing on *One Flat Thing, Reproduced (OFTR)*. Forsythe's vision was explicit: ' I'm trying to develop a dance notation on DVD with the table piece 'One Flat Thing' to show how a piece develops from the inside, how it functions, how it's put together. To demystify the process and elucidate the principles of choreography'.[21] It was also clear what it was NOT. This would not be an effort to create a score from which the piece could be reconstructed (as is the priority of traditional dance documentation). Again, Forsythe was clear, 'we are not trying to recreate the experience of the piece, or the genesis of the piece, it's not etymological, it's not archaeological, it's not historical, it's not any of that. It's

simply about saying, watch space become occupied with complexity'[22] [see Figure 4].

So if it is about scoring but not about reconstructing then what is the central purpose of this effort? In part, the project seeks to illustrate what those of us in dance already know but struggle to articulate, that moving is a thinking process and that choreography is a form of knowledge. It is also about constructing new ways for dancers to leave behind, big, meaningful, engaging traces that relate to their dances performed in the ever-vanishing moment, but also have their own aesthetic integrity. The project seeks not only to capture the vitality of the piece but also to construct a new way of looking at dance, one that considers both discipline-specific and cross-disciplinary ways of seeing and ways of thinking.

To do so, the first step was to delve into the piece and its component parts. The team approached this from within dance and without. As mentioned earlier, scholars from multiple disciplines, the interdisciplinary working group, were invited to view the piece and respond to it from their areas of expertise. At the same time the dancers and designers worked with the Forsythe Company to systematically analyze the material and systems of exchange that make up the meat for the choreography. Nothing was off limits as Forsythe was open to radical reductions as well as elaborate visual embellishment. Starting in 2005, a year was spent, viewing and dissecting the complex intertwining pieces of the dance, learning its history and origins, learning with the interdisciplinary working group what it revealed about human perception in complex environments and considering its relationship to complexity science, information aesthetics, and current issues of surface and event in architecture.

All of the background work has now come together to allow for initial exploration of data visualizations and interactive modules that elucidate the patterns and principles in action in OFTR. The iterative design process continues, as does the pursuit of deeper and more complete

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data as the team works to construct visualizations of the dance that stand apart from the dancers. What if everything was reduced to sound and we just listened to the patterns in the dance take place? What if all the interlocking movement themes in this polythematic piece were assigned a shape or color, and then they were placed in space according to their duration and repetition, and finally the cues for each moment were indicated with a burst of light? What animated cloud of shapes and color would emerge? What would this reveal about the complex system of relationships in the piece? How does this relate to the data visualization strategies in neuroscience, statistics and bioinformatics? What if we traced each of the dancers' pathways, varying the qualities of the lines according to when they are under, over, or between the tables and then removed the dancers from the picture and let the pathways play out their own? What would we see then? How can we allow the eventual users of this score to change the principles and characteristics of the animations to create their own aesthetic universes from the richly specific data housed in the piece? And what kinds of objects or traces will this leave behind? These are the questions that are central to the project at present.

SHORT SUMMARY: CONSTRUCTING MEMORY

The theory of constructed memory says that memory isn't necessarily fixed at the time of an experience. It is a creative and dynamic process in which the recollection of past events is a condition of present circumstances; where you are and what you are doing when you remember. It is the generation of a new memory each time something is recalled. This active and recursive process fits nicely to the concept of choreographic resources discussed here. For there is a loose co-dependency built into the resource creation being undertaken in these four projects. As these artists step back to reflect on their body of work and how to make dance more intelligible, they remain highly attuned to the

needs of their own creative practice. The choreographic resources get absorbed back into the practice; making it possible for the artist to either 'move on' categorizing and setting aside certain approaches or 'go deeper' taking on fresh perspectives on existing ideas. It may be the research encounters and exchanges around the creation of resources that leaves marks on their next choreographic work. These are all active meaning constructing processes closely related to making new dances.

Whether using technology to transfer the dynamic action of drawing into pliable data; inventing impermanent names for individual capacities and unique movements; generating creative agents informed by the thinking in movement; or asking experts from different fields to describe the information contained in choreographic work, the projects outlined here emphasize dance as a particular form of knowledge. Not as an unknowable ephemera, but a complex and meaningful resource for understanding human perception, complex systems of interaction, and moving ideas. But these artists are not concerned that unlocking some of the mysteries of their practice will diminish the experience for the viewer. Quite the contrary, they seek no less than to challenge themselves and their audiences to take dance making to new places and to reveal 'the next level of imaginary trace'.[23]

All of these projects make use of various forms of documentation to produce something meaningful. But their research is not taking place in the gap between dancing and its documentation, nor does it draw attention to dance's disappearance. As such, it is a form of scholarship balanced precariously at the edge of the creative practice itself. More a part of than about it . . .