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CHAPTER 3.3

BODYTEXT:
SOMATIC DATA AS AGENCY
IN INTERACTIVE DANCE

SIMON BIGGS, SUE HAWKSLEY
AND GARTH PAINE

Bodytext is a performance work by Simon Biggs and Sue Hawksley, with interactive sound by Garth Paine, which seeks insight into the relations between kinaesthetic experience, memory, agency and language. A dancer's movement and speech are re-mediated within an augmented environment employing real-time motion tracking and voice recognition that drives interpretative language systems, digital projection and audio re-synthesis. The dancer's verbal description of an imagined dance, derived from somatic experience, is acquired and displayed in an immersive projection. The displayed written texts respond to the movement of the dancer with their own movement and, when they interact with one another, exchange grammatical and syntactical elements in a manner that retains syntactic structure, thus evolving new textual descriptions that, in turn, determine a new dance. The dancer's speech is also acquired as a series of audio events that are subsequently re-mediated and sonified. The emergent texts and audio-visual compositions generate an ever-evolving dance and its ever-evolving description which, in each iteration, is danced again. Dancer and machine are enmeshed in a recursive dynamic they both must follow towards its (il)logical conclusion.

Beginnings

An initial inspiration for *Bodytext* was Alan Turing's early conceptualisation of computation, further articulated by Terry Winograd, as a self-modifying and generative symbolic system. This is a theme Biggs

has repeatedly explored. In a recent paper, referencing Winograd's work on computing and cognition, he outlined this as follows:

> Terry Winograd proposed that the computer is a new form of writing – not a medium for writing but writing itself, reformulated. His argument was premised on a theory of computation that considers computing to be a recursive symbolic process, where a symbolic system (language) acts upon itself to create new instances of the system – effectively, writing that writes itself. In this respect the computer appears to be, in human experience, a novel form of language – language that is auto-semiotic. Winograd observed that "the computer is a physical embodiment of the symbolic calculations envisaged by Hobbes and Leibniz. As such, it is really not a thinking machine, but a language machine" (Winograd 1991: 216). Winograd's argument is that computational processes are intrinsically symbolic and therefore language per se. (Biggs 2013: 233)

Winograd's proposition is that the computer has affected language as profoundly as printing and writing before it. Like Turing, he considers the computer to be a symbolic machine, a system of signs that reflexively operates upon and modifies itself, translating and generating meaning. As such, the computer represents a new linguistic modality. However, in the context of this discussion of *Bodytext*, we do not wish to focus on technology, but rather recognise that our primary concern is what Heidegger identified as human revelation through technology (Heidegger 1977). In this context we propose an emergent apprehension of the human, an evolving non-unitary ontology. This is a process of co-evolution involving people and things, humans and computers, which N. Katherine Hayles has characterised as "technogenesis" (Hayles 2012). Within the context of such an understanding of human/computer engagement we apprehend the computer as a representation – a model of how we understand what it is to be human. However, what comes first in such a process of co-evolution – the model or what it represents? If linguistic ability is a defining characteristic of the human, and if language is that which allows us to represent and understand ourselves and the world around us, then to what extent are we the outcome of our own representations? This is the question that motivates *Bodytext* and is articulated in the interaction of movement and speech, dancer, sonic environment and computer.

We recognise that language is a common ontological determiner for both humans and symbolic machines. However, what of movement? Many would consider movement to be determined not by language but to be a pre-linguistic (or, perhaps, a-linguistic) capability and form of expression. However, the choreographic process in *Bodytext* identifies the body as a

source of embodied stories, or "legible soma" or codes, raising the question of whether the body can be apprehended as a document that might be inscribed, heard or read. Additionally, *Bodytext*'s multi-layered sonic environment acts as both metaphor for environmental constraints and as signifier of the dancer's relationship to both physical space and a personal "inner" voice. In this sense movement is subject to the processes of translation that operate between languages and protocols. Somatic experience is brought into the public arena through speech and interaction with the sonic environment, becoming the focus of an emergent form of engagement – an iterative re-examining characterised by technological transformation.

In *Bodytext*, a spoken (described) and a performed dance are simultaneously interpreted by both the performer and the computational system. This is a multi-factorial dynamic, as dancer, sound and machine are each interpreting and re-inscribing the dance as movement, textual description and sound (the voice, both personal and transformed) and, as an outcome of this process, re-writing the description and, subsequently, the dance and the sonic environment. This is effectively a feedback loop, leading to irresistible entropic decay and eventual stasis.

With regard to entropy, the interactive sonification system is important here as it is the primary means by which noise is introduced into what would otherwise be a discrete and relatively noise-free system. The role of audio in *Bodytext* was not considered during the initial conceptualisation of the work but its importance became evident as the work was developed.

Text

A further inspiration for *Bodytext* was Samuel Beckett's 1958 one-person play *Krapp's Last Tape*. Beckett's play consists of a performer reviewing a diaristic collection of open-spool audio-tapes, playing them back and recording further reflections. Although tightly scripted, Krapp appears, within the play, to select spools at random, fragmenting the linearity of the indexed memories, the narrative emerging through the playing of the recorded texts and the performer's spoken reflections upon them. Beckett's work asks us to consider to what degree the subject (and we ourselves) exists as a narrative construct, before, during and after the event.

Drawing on *Krapp's Last Tape*, Hawksley imagined body stories as autobiographical memories, which might be replayed and rewound as tape loops located in the body. The choreographic process comprised two stages: firstly, an interrogation of the concept of "body stories" and their

"excavation" through movement explorations, which aimed to enhance awareness of habitual movement patterns, sensations and memories; and secondly through crafting the material that arose from these movement explorations into texts – spoken and danced. The texts comprise autobiographical accounts, embodied memories, descriptions of movements to be performed and experiences relating to them, and also include reference to phrases of dance material devised by other choreographers. The inclusion of these phrases raises questions of authorship. Is the utilisation of such deeply embodied movement memories remembering, or stealing? The spoken and written text-objects are intrinsically linked to the choreographic material and at times function as poetic labels or mnemonic tags.

The initial spoken text consists of a two hundred and sixty-five word description of a dance composed of the personal memories of the choreographer/performer and descriptive fragments of dance and movement. The work begins with the performer standing still, imagining the dance and speaking the text, from memory. The computer acquires her speech, transcribing it on a large video projection screen, whilst also capturing the auditory stream as a foundation for the sonic environment of the work. The performer then dances the dance, as described and written, in front of the screen. As she does so the texts displayed on the screen react to her movement, and the sonic environment unfolds, composed through an interactive relationship with the choreography. The text-objects and musical interaction are driven by data relating to the speed, acceleration, direction and orientation of the dancer's movement, their subsequent movement and behaviour determined by this information and the proximity of other text-objects. At times, the energy collected and stored by the text-objects is released in an unpredictable surge, causing them to spin wildly.

The object-oriented programming techniques employed in *Bodytext* allow each text, as a software entity, to read itself and other intersecting texts and to rewrite its own text, depending on what it reads in the other. The outcome is that the intersecting texts re-write one another as a form of recombinance. The complexity is such that it is impossible to predict these interactions or what texts might emerge. Within a few minutes the original text is entirely rewritten, describing a new dance through evolved text-objects that remain grammatically correct but may or may not be meaningful. It is the task of the dancer to interpret and dance this new dance. Towards the conclusion of the performance the texts exchange characters rather than words, resulting in groups of characters that retain the original structure of the written texts but appear as a series of nonsense

characters - not unlike a secret code. The dancer's movement choices are thus increasingly determined by the syntactic form and dynamic movement of the text-objects, rather than their semantic content. At the same time, the dancer's speech is captured as audio and resynthesised based on the position, speed and acceleration of the movement, with the state of the sonification changing as key words are recognised or transformed in the written text.

The voice is central to *Bodytext*, both as the initial and intimate medium of translation of somatic experience, and as part of the outward identity of the dancer. Don Ihde proposes an "inner" voice that creates a self-presence whilst inherently representing temporality. Speaking provides a focus, an identity and a source:

> Listening to the voices of the World, listening to the "inner" sounds of the imaginative mode, spans a wide range of auditory phenomena. Yet all sounds are in a broad sense "voices" of things, of others, of the gods, and of myself. (Ihde 2007: 147)

One subject that informed the choreographic research undertaken for *Bodytext* is that of connective tissue, or myofascia, and the role it plays in shaping the body's kinaesthetic and kinetic patterns. Distributed through and interconnecting every part of the body, any change at one point of the myofascial network has the potential to manifest anywhere and everywhere else, to some degree. Bodyworker Thomas Myers, who established a system of "anatomy trains" as a way of mapping myofascia, describes how "a tug in the fascial net is communicated across the entire system like a snag in a sweater" (Myers 2009: 33). If left unaddressed, tugs can become deeply embodied below everyday levels of awareness, and contribute to the tensioning of characteristic patterns of action. These may be clearly visible habits, or what philosopher Elizabeth Behnke describes as ghost gestures – micro-movements and gestures that can "haunt" body and movement patterns. Ghost gestures, Behnke suggests, might be formed through repeated activities, by specific events or accidents, or by imposed force, but can then "become 'trapped' in the body, migrating all too readily from one body part to another, haunting us far beyond the original occasions eliciting the bodily comportment in question and becoming instead a sedimented style of response in general" (Behnke 1997: 191). The unpredictability of the emergent environment of *Bodytext* effectively shakes up this sediment. With so many variables, the dancer may resort to habitual responses, which further emphasise characteristic patterns, or surprise herself by discovering uncharacteristic responses.

Equally, the process of re-synthesis and re-spatialisation of the voice reconfigures the texts of the stories that initiated the performance, but also the voice of the storyteller. Opening up the sounds of the voice creates a context in which the latent voices of things and others can be heard as part of, and instead of, "myself." For the performer, this is quite a challenging and levelling experience, and works to disrupt the self-presence Ihde describes.

Sound

The role of sound in the work is also key to how the entropic dynamics of *Bodytext* function. Without sound much of what constitutes the performance, structurally as well as phenomenally, would not exist. This is because the audio functions to mediate the computer's processes of speech acquisition and the accuracy of the speech to text algorithms, and to create the environmental context inhabited by performer and audience. The audio of the spoken text is acquired by the audio-system and re-mediated, becoming the music/soundscape for the performance. In this way, the "inner voice" (Ihde) of the dancer, proclaimed through speech, is remediated as the inner voice of the system itself. Enacting the source sounds and their remediation is achieved through dance and gesture – using the body – in a feedback loop, from which the experiences originated. Gesture is further enacted though the multi-channel spatialisation of the audio, enveloping the audience in the "dance as sound" through the placement of the loudspeakers around them, immersing the audience within the performance, and establishing the environmental conditions in which both the performer and audience engage with the exploration of both the "inner" and "outer" voice. As the dancer moves, and her bodily and vocal sounds are acquired and processed, the resulting sounds are dynamically shifted around the audience, enhancing their sense of spatial immersion, reflecting the effort and dynamic of the choreography whilst simultaneously teasing out the multifactorial quality of the exploration and process that makes up the performance work.

Speech to text software requires words to be spoken clearly and the system to be trained to recognise the voices of specific users. As the audio environment in *Bodytext* evolves during the performance, responding to the sound and movement of the dancer, its effect upon the speech recognition system increases, causing the system to misinterpret more and more the dancer's speech. This process introduces an entropic dynamic to the work which conditions what the performer is required to do and

ultimately determines the duration of the final performance and the manner in which it ends. The sonification system utilises real-time frequency analysis of the incoming text to determine key characteristics of the voice, its fundamental pitch and its formants. These characteristics are used to amplify resonant frequencies in the iterative audio capture process, drawing out a harmonic bed for the other sonification layers. Additional layers include the replay of key words, the granulation of incoming text into clouds of small sonic particles and the spatialisation of the sonification through the performance space in direct relationship to the choreographic gestures. The performer is faced with a range of auditory phenomena which she can elect to attend to, ignore or affect, consciously or unconsciously, through the shape of her movement, which in turn may be shaped in response either directly, in counterpoint, or imaginatively to factors such as the texture, density, intensity, direction, form or content of the sound. The spatialisation of the sonification seeks to engage the audience in an immersive experience (Paine 2008) of the morphology of the dancer's movement and gesture and the act of making public the dancer's inner voice.

Conclusion

In *Bodytext* personal data, containing descriptions of somatic sensations, memories of events, choreographic phrases, injuries and subjective sensations and experiences, is verbally placed within the performance space and media system. Once it is spoken this data immediately becomes historical, a baseline for evolving narratives. Having shared in this process of public disclosure, the audience members are no longer naïve spectators, but participants in a performative exchange. The proclamation of private information as semi-autonomous text-objects is transformative, allowing the text to take on a life of its own, its potential value realised through the performance. The de/re-composition of the initial formed and per-formed dance and texts and the remediation of the spoken word to form an evolving and responsive environment disrupt the expectation that the spoken text itself holds meaningful value. Here, there might be a similarity to Buddhist meditation practices of non-attachment, such as in Kalachakra meditation, where a sand mandala is painstakingly created and then destroyed. The dispersal of the mandala functions as a meditation on impermanence. Through the dispersal and performative re-forming of the dancer's spoken and somatic texts the performer's agency in creating the narrative is thus challenged. The re-structuring and re-writing of the texts into forms that are ever harder to interpret, for both dancer and audience,

challenges the expectations of semiosis and disrupts the relationship between reader and text, presenting their respective ontologies as contingent and tenuous. This inevitable failure in the processes of interpretation leads to eventual system stasis. That tension is only broken by the dancer's final spoken command to "escape" (which causes the sound system to be released from its entropic evolution) and flags the dancer's resignation to the fact that the data is no longer the performer's but something other, a social artefact, an environment and a visual spectacle, inaccurate as a reflection of the original intention.

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