Atomos EChOs (2013)
Stephanie Jordan, University of Roehampton, London

Opening: in the gloom, a huddle of undulating bodies. Gradually, the huddle dissolves floorwards and into lifts. The group splits horizontally out into the space and the tempo accelerates. Out of disorder, clarity emerges.

There are ten dancers, part-terrifying, part-beautiful, striving for the impossible, such is their speed, reach and commitment--to precision, to forging their own rhythms (not made for them by the music), to working together in communal endeavour. Whoever they are, human or superhuman, their anxiety to achieve is moving.

Long, long skeins of movement, a fantastic scribble… strange hand signals, jointed distortions and full body articulations, testing legibility…an occasional moment of recognition, a motif?

Sudden cuts between episodes are marked by violent shifts in lighting colour and span and a change in soundscape.

Two simultaneous quintets spill through the space: short musical phrases parse what we see. Occasionally, dancers match at a distance, moments for us to draw breath.

One dancer particularly, Alvaro Dule, is outstanding exemplar of disrupted, hyperextended classicism—the deepest back curving and arching, the juiciest hip circling, and the most painfully extreme pointed feet.

Holograms hang in the space, seven rectangles (also like holes in a screen), depicting, at different times, beetles, a power station, an explosion or slow motion film of dancers, foregrounding their super-stretched muscular action rather than pictorial potential. You need your 3-D glasses.

A regular beat is heard in the music, and the tension eases. The dancers set forth in unison blocks with big long phrases, one surprisingly balletic. Could this be the triumphant wrap-up ending?

Soulful music: a duet turns into a trio, conveying deep need of physical and emotional contact.

Seventy minutes have passed.

Atomos is the new piece by Wayne McGregor, made for Wayne McGregor | Random Dance, his own company, with which he undertakes his most radical 'research'. A piece for Random is more of an opportunity for fundamental enquiry and reflection than outside commissions offer to this most international and busy choreographer. The year 2013 had already included McGregor premieres for the Royal Ballet and San Francisco Ballet, plans for a Rite of Spring (intended for the Bolshoi—temporarily on hold) and a preliminary experiment at the Roundhouse with Random. My memories of Atomos come from seeing two performances at Sadler's Wells Theatre. As the title suggests, this is a piece inspired by the concept and structure of the indivisible atom itself.

It is significant that the context in which I saw <u>Atomos</u> was different from that of most premieres that I attend. I was part of the team on an AHRC-funded project[1] called EChO (acronym for Enhancing Choreographic Objects), a follow-on to the previously Beyond Text funded network meetings (http://projects.beyondtext.ac.uk/choreographicobjects/). The word 'Enhancing' recognises McGregor's previous work with an autonomous, thinking, choreographic entity, a choreographic (digital) tool, or rather agent, that can be used in the making of choreography. Linked with the creation of <u>Atomos</u>, the new project was directed by WM|RD's Research Director Scott deLahunta and anthropologist James Leach.

I had been invited specifically as an advisor to the core EChO team, because of my interest in links between dance and science, here, however, to draw from Dance Studies (alongside Sarah Whatley from Coventry University). Being an advisor meant that I knew about the history and development of a new digital agent and the plans to present it to the public within a Wellcome Collection exhibition 'Thinking with the Body, down the road at Euston and running in tandem with the Wells performances of <u>Atomos</u>.[2] The exhibition was as much about the longer history of McGregor's fascination with science, since interdisciplinary discussions began back in 1999: a Software for Dancers workshop in 2001, then initial explorations through artificial intelligence expanding into cognitive science in 2003, when McGregor became a Research Fellow in the Department of Experimental Psychology, University of Cambridge. The work ranged from analysis of thinking through the conventional tool of dancers' notebooks, to the evolution, from 2008, of the first digital tool, the Choreographic Language Agent (CLA).[3] It is crucial, however, that those behind both the old and new agent were not simply software programmers but digital artists in their own right, Marc Downie (OpenEndedGroup, USA) and Nick Rothwell (Cassiel, UK).

The new agent is called 'Becoming'. McGregor had pronounced: 'The CLA needs a body.'[4] The original agent had been fed by text that he and the dancers had provided, and, as stimulus for dancing, it fed back to them as moving geometry on screens at the side of the dance studio. The dancers danced, went over to peer at the screen, danced again: they stopped and started, and got cold. The CLA was lifeless. 'Becoming', on the other hand, emerges from a rectangular, a screen of human height, so it bears some of the characteristics of an eleventh dancer in the studio. A skeleton of lines like bones intersecting with joints appears out of nowhere, and appended to it are what look like light webs, hairs, as well as arrows and geometrical structures. Wearing 3-D glasses, you notice how it can rotate and trace luscious arcs. Thus, it elicits a kinaesthetic response, as if alive. This is one in a series of 'moves', each followed by blackout, during which the 'creature' prepares for the next move. Sometimes a joint that has 'grown' a cluster of bones presses directly towards you, dispassionately. The effect is calm, sometimes sinister, sometimes juicy, cooler if the colour is blue, more dangerous if it is red or shot through with yellow.   McGregor thought it beautiful…

There was a big secret behind this creature, its origins within a certain well known science-fiction film. McGregor kept quiet about the identity of the film until a public interview prior to the second performance of <u>Atomos</u>. It is Ridley Scott's 1982 <u>Bladerunner</u>.

Downie and Rothwell set about dissecting the film into short clips, 1, 200 in total--McGregor refers to this process as the film 'cannibalising' itself. They proceeded to analyse the motion in each shot digitally and create software that would respond autonomously to that motion in a series of responses (the number code of frames and moves is revealed at the base of the screen). 'Becoming' can make decisions, retain certain diagrammatic and mechanistic qualities, but also appear human, contending with gravity and incorporating the semblance of intention. It operates with rules that you see across the top of the screen, about 25 in total, like 'Adds Stiff Angle' and 'Parachute', or the 'muscle' annotations, 'Torque', 'Torque Pair' and 'Linear'. 'Follow & Move' means following the motion from the selected clip, and looking around in order to move to an area with more motion in it. Downie, who has worked in the past with Merce Cunningham and Trisha Brown, speaks of the invention as 'attempting to be beautiful, evocative, invidious, but simultaneously transparent….' and, significantly, drawing attention to, and declaring, its own processes. Hopefully, he says, it 'trains your eye to see how it's made'.[5]

But, as in Cunningham's seminal work (greatly admired by McGregor), the application of computer technology drives towards discovery, as choreographer and dancers are constantly surprised and forced into new directions. In turn, choreographer and dancers donned their glasses. 'Grab a frame and it provides a series of propositions' says McGregor.[6] So they selected clips of 'Becoming' that interested them, and set about gleaning from it movement information that would transform their personal vocabularies.

A film of this working process by David Bickerstaff, the artist/ designer responsible for the exhibition's audio-visual content, was the brilliant climax of the Wellcome exhibition, footage of Random dancers (who are creative movement-makers themselves) engaging with the eleventh companion in their midst projected blown up across a far wall. We sat on benches watching this wonderful piece of theatre, having already experienced 'Becoming' live and with the glasses, in an ante room. It was here that I got to know this creature privately. On my second visit, I sat looking at it for an hour or so.

Atomos had featured earlier in the exhibition at the end of a timeline detailing McGregor's career with science. Here, I found the PACT project (Process and Concept Tracking) especially intriguing, an analysis of McGregor's creative thinking by cognitive scientist Phil Barnard across six interviews spread between May 2012 and the present, October 2013. We saw highlighted the pathway of the choreographer's decisions about Atomos through time, what changed, what ideas came and went, when, how and why. In other words, through this anatomisation of creative impulse, the messy process of artistic creation was revealed. We also read that McGregor approached the creation and fixing of structure and movement content in a new way. This was less about creating a body of movement and then developing and structuring it into a whole piece, which he had done in the past, more about the generation and structuring of material running in parallel, the choreographer leaving each short 'atom' alone, not to be revisited or revised until a much later distillation process.[7] On film, Wayne indicated that he found Barnard's methodology during interview very useful to his future work. I was eager to know more about how these

discussions might impact on his future, and whether they had already affected his process during the making of Atomos itself.

The entire 'Thinking with the Body' exhibition was geared towards artistic process, telling us about McGregor's own experience—and about what most interests him, more than end product—but, in some instances, getting us to look at our own perceptual behaviour. We were invited to see sound (Ben Frost's score for Wayne's previous work FAR (2010)) in a darkened room, and to engage with an installation designed by Magpie Studio to bring into 3D Random's new learning resource book for school teachers called Mind and Movement.

The exhibition experience encouraged me to consider my own process, or route through, the larger project of Atomos. This was as follows: observations of three rehearsals in North London (two of these creative workshops, the third a run-through of existing material, although I wasn't lucky enough to see 'Becoming' in action at any of these, and many late rehearsals were closed to visitors); two long visits to Wellcome; two public interviews with McGregor (at Wellcome and Sadler's Wells); a further Wells seminar at which the whole AHRC-EChO 'Becoming' team was present; the premiere and second performance of the work itself; finally brief email correspondence with Odette Hughes, Associate Director of Random. More than I can possibly know, that order of events, in no way precisely engineered, greatly influenced the kinds of ideas and perceptions that I had at different stages of Atomos's development. Apart from the Wells performances themselves, I simply happened upon, picked up on, information that became available along the way. (N.B. It was not possible for me to have any discussions with the dance artists prior to the premiere.)

Very early on, I was struck by the size of the crowd of collaborators working both inside and outside the studio. Not only was there McGregor (responsible for concept, direction and set) and the Random dancers, but also those involved with design, Lucy Carter (lighting), Ravi Deepres (film and set photography), Studio XO (costumes), and the composer duo A Winged Victory for The Sullen. There were also the scientists and researchers, with their computers and cameras, all of whom were to feature at Wellcome and who, as Barnard put it, were invited to 'help him [Wayne] to break his conventions…to improve his creative thinking'.[8] As well as Barnard and deLahunta, there was David Kirsh, from University of California, San Diego, developing his Distributed Cognition project, which tracks the transmission and 'growing' of ideas between Wayne and his dancers (through both language and motion) while, from a social science perspective, Leach (now Professor at the University of Western Australia) led a discussion workshop for McGregor and dancers--on the concept of the human body as collectively owned and produced.

Soon, I noted a particular vocabulary shared between the choreographer and his scientists, terms used like 'sonification', 'attentional score', 'pixillation of movement'. Soon too, I learnt from deLahunta that everyone involved in the creation of Atomos was asked to watch Bladerunner, and to 'atomise' it.[9] Some had liked the film, some not, yet it had a significant effect upon the 'feel' of the new piece and its structuring, especially the violence of its cutting. From a range of interviews, I understood that there were still further stimuli, for instance: biometric data (such as temperature, retinal movement, adrenalin flow, stress arousal) which came to be

termed 'body broadcasting', although these could give rise to intimate, secret passages of dance; grids, drawn from the algorithmic work of Josef Albers; prime numbers (another concept of indivisibility); and that McGregor had created a series of 31 separate dance 'atoms'. Hughes informed me that three of these dance 'atoms' were derived closely from 'Becoming'. No. 26 Becoming/Text comprised solos and duets that drew directly from the agent as if it were another dancer. No. 27 Becoming/Sol LeWitt came from dividing the agent's screen in various ways and focusing on a particular portion of it--a LeWitt principle--using concepts such as momentum, weight and flow; No. 30 Empathetic Pulse/Attentional Score stemmed from Barnard suggesting different ways of looking at and translating material from 'Becoming' and then asking the dancers to devise their own tasks in response.[10]

Always, from what I saw and heard, I was impressed by McGregor's voracious appetite for the new, his prestissimo style--of moving and talking, his impatience to disrupt a trajectory of thought and to learn from that disruption. I imagined him as the supreme multi-tasker, operating in several places at once, brainstorming with fellow artists, contributing…yet always having the final say. I was interested, for instance, to learn from an interview with Barnard that he did not want the musical score to be handed to him as a fait accompli, rather he welcomed a series of propositions from The Winged Victory, their order unfixed, so that he could intervene in decision-making about overall structure.[11] At the Wells interview, Wayne told us that he also asked the duo to 'granulate, atomise' moments from Bladerunner, to 'get inside' the original Vangelis score.

As the creative process raced towards its conclusion, I began to wonder more and more about the distillation process, how decisions were made about the editing of so much information, the selection of supposedly the most fruitful pathways, the recognition of blind alleys, the cutting, overlapping and repeating of material, some of these decisions rational, some, as often during an artistic process, intuitive. All such decisions are crucial in determining the nature of a dance as a whole, how moments become large or small, and how they speak to and against each other. Potentially, each decision could move a work in a startlingly new direction. Each could also erase from attention concepts that were originally central. But the exhibition concentrated on the generation, rather than later shaping, of movement ideas, this other very important part of artistic process. During the Q & A after the Wellcome interview, McGregor, given the complexity of the questions that I asked, sensibly advised me to wait for answers until I saw the premiere, but told me that he had created points of stability throughout the structure of the final work to help navigate a path through it. But the question did arise: what process information was, or was not, shared or shareable?

Returning to 'Becoming', at the AHRC-EChO seminar,[12] a Random dancer demonstrated his response to one of the moves on the screen by drawing geometrical patterns in space, both virtual traces and concrete, formed as designs within the body. Others, including myself, would have probably approached the same task quite differently: the possibilities with 'Becoming' are, after all, endless. One audience member remarked that she still saw the dancer primarily as a McGregor dancer, not as one moving in a new way in response to this new stimulus. I recognised the style that she was talking about. The demonstration illuminated both how dancers inevitably carry their histories into new situations, but also how spectators, to some extent, see

what they expect to see. Yet McGregor noted the emergence of a new way of putting movements together, necessitated by the fact that the creature never stops evolving. A new charge of momentum resulted in the dancers 'culling, grasping and foraging'. That, in turn, manifested itself as 'behaviours' rather than set phrases, more free-form and time-stretching than linear, and with wild dynamic swerves—'strange dives and articulations'. Hughes confirmed that some dancers had moved away from their 'signature' way of dancing.

Returning to Atomos in performance…

The premiere, viewed from the first circle:
Halfway through, absorbed by the intensity of the choreography, I realise that 'Becoming' is already part of my past. The sheer speed of what I see on stage, literally, and in terms of information load, has nothing to do with my memory of 'Becoming' and my private relationship with this eleventh dancer. I decide not to worry about this. I am an analyst of dances, not of dance-making.

Second night, from the stalls:
I begin to notice that the mixture of human and something else (superhuman, replicant, technology) is a link back to 'Becoming', to Bladerunner and now to the music of Winged Victory—the contrast between their strangely removed synthesiser sound and the personal, visceral, emotional voice of a stringed instrument.
Was it significant that most of the science team had left after the premiere? Many attended first night. Downie and Rothwell left days before that—this now seemed like a year ago. Their work had been about process. They were done.

Perhaps the most remarkable aspect of this project had been the link forged between the Wellcome and the Wells, the documentation of history and process and the new work Atomos. It encouraged us to reflect upon both the product and the process that led up to it and, most importantly, their relationship, as if the exhibition were some kind of super programme note.[13] At this point, it is useful to consider the status of process within our understanding of art and the discipline of aesthetics.

In terms of choreographic practice, even though McGregor's prestissimo style and range of concerns might well be unusual, it is very common for artists, like him, to develop strategies for refreshing themselves, forcing themselves to face new horizons and to be uncomfortable. The very act of collaboration does this, and I have no doubt whatsoever that, for McGregor, the contributions of his scientists (as well as his other artist collaborators) are invaluable: they stimulate his artistic imagination. Many artists, however, engineer strategies for refreshment more privately, either because they believe that this is irrelevant or, at least, unimportant, information for anyone else, or because they do not have the resources to pursue this aspect of their work in such a public manner. Yet, during the original Choreographic Objects seminar (2009), featuring McGregor's work alongside that of other artists, William Forsythe observed that public process discussion might indeed play a key role in persuading sponsors and producers that dance is an intelligent, significant art form.[14]

There is also a history, beyond the artists, of a concern with process, starting with the journalists and programmers of pre- and post-performance talks who respond to our desire to get into the minds of brilliant, creative people. From within the academy, a

particularly good example is that of musical sketch studies, the piecing together of traces, markings and erasures, in order to demonstrate the often-devious route via which a composer builds a final score. This could well be a by-product of musicology's almost pathological obsession with structure. A particularly fascinating recent example extends beyond this towards meaning: a 'genetic' analysis of Erik Satie's Socrate by Pietro Dossena, which identifies the similarity between a particular secret moment in the score and a well known passage of plainchant, suggesting a parallel between the philosopher's death, the sacrifice of Christ and the composer's own sense of victim-hood.[15] Suddenly, with this new knowledge, a much-disguised moment in the final Socrate score becomes powerful.

There is also a convincing argument within aesthetics that works of art should be evaluated as autonomous aesthetic objects that embody knowledge,[16] and that there is not necessarily a tight, logical relationship between what they mean to us and the often messy process via which they came into being. It would be hard to claim, for instance, that the actual processes of making were the only means by which a particular work could have come into being. Additionally, at any stage, the same processes could have given rise to a radically different outcome. Furthermore, knowing about processes can 'disappear' other important aspects, or possible interpretations, of a work.

The problem of 'knowing too much' struck home while researching an intriguing solo by Mark Morris set to Bach's Italian Concerto (2007), even if this is a very different kind of process from the one behind Atomos.[17] After watching the solo many times, I interviewed the choreographer. Later, I was privileged to learn the solo, and it was fascinating to discover the range of images attached to particular movements: for instance, getting bigger and fatter like a Kathakali dancer, speed-skating, milking a cow, unsheathing a sword, Hamlet holding the skull of the jester Yorick. How to assemble all this conceptually? These images had never occurred to me when I watched the solo. Knowing about them also highlighted the disjunct, mosaic-like structure of the solo (Morris calls it 'anti-organic'[18]), more strongly than film recordings suggested. Yet now, I felt that asking what prompted some of the movements was an impertinence or intrusion and, while this new knowledge was certainly interesting, it solidified meaning and reduced the power and fascination of semantic uncertainty and ambiguity. So, ironically, at least in this case, knowing about process made me wonder whether I wanted to know about it after all.

But can knowing about process *sometimes* be useful?   I suspect that understanding Merce Cunningham's philosophy and use of random procedures (his giving up control) helped me experience time differently, to accept the moment in a piece, as opposed to thinking about context and future, a more pressured stance. Perhaps too I was even more bowled over by his surprises precisely because I knew about the random processes which gave rise to them—although, crucially, Cunningham usually *chooses* his specific random methods and makes key *choices* about his own movement. Learning too about later structural processes, beyond movement generation (which the Wellcome exhibition barely touched upon) can uncover a wealth of subtlety that adds to the richness of aesthetic experience and lead to perception of details far less obvious within a finished work. But I suggest that this kind of knowledge enriches dance experience in a more general sense, rather than being central to the understanding of one specific dance. Indeed, as suggested earlier,

it could even limit or distort our understanding of that dance. As an example of enriching dance experience, McGregor's work with Random in education is exemplary, likewise his generosity in sharing his discoveries with others, his passion to prompt creative choreographic thinking in professional and non-professional situations, and to offer Creative Learning programmes to young people of all ages, adults and community groups.[19]

Our reception of dance remains a complex and slippery business, as we bring our different backgrounds to bear upon what we encounter, as analysts watch and pick apart a dance many times, often using a single film recording, often in ways never imagined, let alone intended, by the choreographer. The pairing of the Wellcome exhibition with the premiere of Atomos was brave and timely, celebrating a fascinating, fruitful engagement between dance and science, while throwing a spotlight on the tricky relationship between what kind of a dance is made and how it is made. The highlighting of this conceptual problem suggests that the complementary perspectives of history, analytical theory and aesthetics could now offer much to the Random research enterprise, together with greater focus on the dance product itself. Atomos is, after all, a staging post within the larger process of a very public career or, as McGregor put it in one of his many interviews, his latest 'marker in time'.

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Thanks to Roehampton colleagues Anna Pakes and Tamara Tomic-Vajagic for their informal discussions with me about the role of creative process in the understanding of dance.

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[1] AHRC stands for Arts and Humanities Research Council.

[2] Surprisingly few people, however, seem to have attended both the exhibition and a performance of Atomos, particularly people who had attended a performance and could have visited the exhibition afterwards. But this does not negate the point about an intended link between the Wells and the Wellcome. I am grateful to Hetty Blades, who carried out a survey from a sample of those who attended the exhibition, for sharing her figures (October 31, 2013).

[3] Scott deLahunta, 'The Choreographic Language Agent', in Dance Dialogues: Conversations across cultures, artforms and practices, 2009:
https://www.google.co.uk/#q=choreographic+language+agent+scott.

[4] James Leach, notes for research workshop with Marc Downie, Nick Rothwell, Wayne McGregor and Scott deLahunta, February 2, 2013.

[5] Marc Downie, speaking on film in the Wellcome exhibition 'Thinking with the Body'.

[6] Wayne McGregor in interview with Alistair Spalding, Sadler's Wells Theatre, October 10, 2013. I also heard McGregor in interview with Mark Lawson at the Wellcome Collection, October 6, 2013.

[7] McGregor in PACT interview with Phil Barnard, August 8, 2013.

[8] Phil Barnard, speaking on film in the Wellcome exhibition 'Thinking with the Body'.

[9] Scott deLahunta in interview with the author, August 12, 2013.

[10] Odette Hughes, email correspondence with the author, October 31, 2013.

[11] McGregor in PACT interview, August 22, 2013.

[12] The AHRC-EChO seminar was held at Sadler's Wells Theatre, October 3, 2013.

[13] McGregor, incidentally, is content for people to come to his work without reading his programme notes.

[14] The 2009 Choreographic Objects seminar took place at Sadler's Wells Theatre, April 25, 2009.

[15] Pietro Dossena, 'A la recherche du vrai Socrate', Journal of the Royal Musical Association, 133/1 (2008), p. 8. Satie was deeply moved by the Socrates story, linking it with the sacrifice of Christ, Dossena suggests, but he felt that he too was a victim, facing punishment for responding abusively to negative response to his Parade score, pp. 12-13.

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[16] Anna Pakes, 'Art as action or art as object? The embodiment of knowledge in practice as research', Working Papers in Art and Design, 2004: http://sitem.herts.ac.uk/artdes_research/papers/wpades/vol3/apfull.html. Pakes takes her argument for art as embodiment of knowledge from Hans-Georg Gadamer (1989) Truth and Method, 2nd, revised edition, London: Sheed & Ward.

[17]Jordan, 'Mark Morris Marks Music, Or: What Did He Make of Bach's Italian Concerto?', in Stephanie Schroedter, ed. Bewegungen zwischen Hören und Sehen. Denkbewegungen zu Bewegungskünsten (Wurzburg: Königshausen & Neumann, 2012), pp. 219-36.

[18] Mark Morris in interview with the author, October 8, 2009.

[19] Unfortunately, 'Becoming' itself is too complex and expensive to be shared beyond WM|RD. An audience member at the Wells seminar stated her wish most vehemently that this public sharing could be made possible. Yet the EChO team (tasked to do so by the AHRC) will provide an 'Implementation package' that makes available something of the conceptual underpinning of 'Becoming'.