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When the body takes over…

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'Thinking a movement is destroying the movement'.
(Merleau-Ponty, 1962)

'Anyway, I think with my knee'.
(Joseph Beuys, 1987)

'Movements of the body are developed almost without conscious effort, in most cases. There seems to be a sort of intelligence of the body: a new dance is learned without analysing the sequence of movements'.
(Barral, 1965)

Although maybe surprising, it took some while for philosophers and cognitive scientists to acknowledge the importance of the body. The denigration of the body governed most metaphysical thought, and perhaps even most philosophical thought, until at least Nietzsche. More recently one can see an explicit and nearly universal rejection of Cartesian dualism (Gallagher, 2000). The body has made its big come-back and is reinserted in informational theories of self-organisation. These contemporary cognitive models of the brain structure are useful in the analysis of dance improvisation.
This paper focuses on the relationship between body, intentionality and choices. The main questions of this research maybe briefly stated as follows: (1) How does the dancer shape his movements? (2) What role plays the mind in improvisation practice? (3) How much cognitive processing is needed? Via the phenomenological approach of Maurice Merleau-Ponty, I describe how the body moves intentionally through space without the explicit use of rational decision making.
In the first paragraph I describe how we monitor our movements in daily life via the use of body schema's and proprioception. Instead of consciously monitoring our own body, we depend on information channels that are more subconscious and subpersonal by nature. In fact: thinking-through-our-movements is time consuming and, more importantly, quite ineffective. In the second paragraph I describe how movement and consciousness are related. Especially the distinction between consciously attending to the body and being marginally aware of the body, is relevant. In the third paragraph I focus on dance improvisation practice. In a dance improvisation the dancer is faced with an almost infinite number of choices. Improvisation means choice (Katie Duck, 1997). Several factors will affect this choice: the spatial configuration, the physical and emotional state of the dancer and a whole set of invisible options hidden at the surface of the performance space. I distinguish the following performance states :

(1) the moving mind: movement choices derive from the mind
(2) the knowing body: movement choices derive from the flesh
(3) the lost body: no choices are being made

It is the 'knowing body' which I find useful in dance improvisation practice.

Phenomenology: proprioception, body schema and body image
Phenomenology establishes a relationship between the subject and the objective world through the body. Most of the time the bodily movements are restricted to daily actions: at other times unusual patterns of movements serve no longer the primary conservation of life but the movements transform into dance. In both cases the body meets the surrounding space in its ultimate desire to act upon the environment. Proprioception plays a crucial role in daily movements as well as in improvisation practice. Proprioception is all the information about the movement and position of body parts relative to each other deriving from the mechanical receptors in muscles, joints, vision and the inner ear (Cole & Paillard, 1995).

Proprioception functions mostly on an anonymous and subpersonal level. On one side the body can be seen as an object of consciously intention. I carry an image of my body with me: a body image, a mental construct or representation. This is a container full of beliefs, feelings and attitudes about the body. On the other side, the body operates in a subpersonal and pre-reflexive way. The body schema's - a system of processes that constantly regulate posture and movement- take care of this.
Imagine the next situation: I am walking down the street, in my right hand I hold a shopping bag, in the left hand my mobile. When I cross the street I avoid a cyclist while I am saluting to an old friend. This all happens without me being consciously aware of it. While I am walking I do not have to attend to putting one foot in front of the other: I do not have to think through the action of reaching for my mobile. I am marginally aware that I am moving in certain ways, but it is not the centre of my attention. However, when I stumble and my whole body is about to fall, it is my attention together with the automatic response of protection which saves me from falling.
Neuropsychologists have examined what happens to patients who have no longer access to the subpersonal and unconscious monitoring of their body. Jonathan Cole and Jacques Paillard (1995) describe deafferented patients who have lost the senses of joint position and touch. One of these patients is I.W. who has lost sensations of touch and muscular proprioception from the collarline down. I.W. has to think all his movements. His movements are extremely dependent of visual monitoring, of mental concentration and of motor programs learned before the onset of his neuropathies. For example: I.W. sleeps with the light on. He needs light in the room to visually control the actual position of his body. The visual feedback can only be used with concentration and intellectual effort. I.W. learned to walk again. However when he sneezes (a disruption of his mental concentration), he falls over. Falling can be very dangerous because I.W. has no longer access to the automatic response of protecting himself when he falls (e.g. the hands reaching to the ground).
I.W. needs to concentrate on all movements and therefore he developed only a relatively small repertoire of movement. The limits to how much he can do in a day he describes as having to do with his own mental concentration, rather than the amount of physical effort required. I.W. must conceptualise his movements and visually monitor parts of his body continuously. It is a life of someone who has to think and rethink his movements continuously.

Action and consciousness of Action: The importance of not being conscious.
In many situations it is a great advantage of not being aware of the action. If a dancer had to be aware of his movements all the time, his movement language would become slow and less refined. Many research findings support this view. In a research of Jeannerod and Castiello (1991) subjects had to reach for an object as fast as possible. During the task, the researchers changed position and appearance (it became bigger or smaller) of the object. The subjects did not only have to reach for the object but they also had to give a verbal signal when they became aware that the position or the appearance of the object had changed. The experiment showed that subjects could only report the change after a long delay: the body had already adapted to the change before the subject became consciously aware of the change. Additional research has shown that in a voluntary movement the movement preparation starts 300 to 400 milliseconds prior to the awareness of the movement. This means that a person can initiate an action without being aware of it: consciousness follows the action.
In another experiment made by Mel Goodale and others (see Jeannerod, 2002) the subjects had to move their hand to a coming target. This is an automatic action. The velocity and accuracy of the performed actions were measured. Subsequently, the subjects had to wait five seconds before they could move their hand to the target. In the latter condition subjects become aware of their action. The results show that the velocity and the accuracy of the movements differ in the two conditions. In the delayed condition, the speed of the movement is slower and the accuracy is poorer. If subjects are conscious of their movements, it affects the velocity and accuracy of their movements in a negative way. The subjects lose the 'online control of their movements' (Jeannerod, 2002).

Attention and Action.
The central monitoring of an action, is a crucial characteristic of conscious movement. The following levels of motor representation can be distinguished (see also Jeannerod, 2002):
(1) The most elementary level is the level of the automatic movements and reflexes. Automatic movements are used to make quick adjustments and corrections. In this case subjects remain completely unaware of the performed action.
(2) The second level is the level where subjects are able to report on their actions. They can comment on effort and difficulty of the performed movement. This level also includes all the movements with a general, global sense of awareness . Subjects are however not able to report about specific details, like posture and position of the different body parts. I call this peripheral awareness.
(3) The third level is the level where subjects are able to understand the what and why of their actions. Explicit cognitive decision making directs the movements.

Shaun Gallagher (2000) makes a difference between consciously attending to the body and being marginally aware of the body. Sometimes we are consciously aware of our body or parts of our body. Most of the times,

however, our attention is directed away from our body toward the environment, the surrounding space, the other or some project we are undertaking. When I am conscious of my bodily movement, I am aware of the pragmatic content of my actions, for example 'I am drinking my coffee' and not so much on the specific details of the motor action (pressure and force of the fingers, position of the hand etc.) 'I am aware of my bodily actions not as bodily action *per se*, but as action at the level of my intentional project' (Gallagher, 2000). Dancers however are trained to be overtly aware of the position, weight, pressure, force and resistance of the various body parts. They are aware of the stretching and flexing of the muscles, rotating of the joints, the bending or unbending of the limbs and the maintenance of balance. In improvisation the dancer faces the difficult task to monitor the internal body and at simultaneously direct the attention toward the environment.

Dance Improvisation

' I think the biggest difficulty in the kind of improvisation we practice is not consciously shaping your body, is actually letting your body fold and to develop a more reactive and a many timed body as opposed to a shaped body…I see that as an idealised form of dancing: just not knowing and letting the body dance you around'. (William Forsythe, 1999)

In our daily life as well as in dance practice we depend heavily on this proprioceptive information. The dancer needs to trust his own body, especially the subconscious and pre-reflexive knowledge of the motor system. Since the dancer has to be very sharp in timing and dynamics, he has to take risks. A continuously cognitive monitoring would be to rational and, because this information has to travel all the way to the "top", to slow. It is important to make a distinction between improvisation and choreography. In a choreography the dancers learn the dance material: in this learning phase dancers start on a conscious level and in the process they more and more rely on proprioceptive information. This means: first the dancer thinks his movements through and step by step the body takes over. Research suggests a 2-step process (Epstein, 1986; van Wieringen, 1986, 1988). "During the early stages of learning a higher, more attentionally demanding level of control involving planning, representation, and all manner of cognitive strategies may exist. During the later stages of learning the well practised, automated skills may well be controlled through use of the motor system dynamics in the absence, or near absence, of any type of a priori planning, cognitive representation, or cortical control " (Abernethy & Sparrow, 1992). Skilled dancers are often ignorant of the precise details of action by which they perform a particular dance skill. "This may be a blessing in disguise, however, because it appears that the less aware, or more subconscious, you are of the production of a particular movement, the better it is" (Newell, 1978).
Let's focus again on improvisation. In improvisation the dancer is not performing a fixed dance piece but he is improvising his movements. The dancer reacts on all the perceptual input and generates movements out of it. The alertness, a rapid reaction system and an attentional sensory system are crucial characteristics of the improviser. Nevertheless, an improviser can preplan his movements as well. Often a lot of cognitive processing is going on. The crucial moments of improvisation are however the moments that the mind is no longer thinking and planning its movements but when the body starts to move without the explicit use of a mental configuration or reference.

"When you are when you don't know where you are is one of the most precious spots offered by improvisation. It is a place from which more directions are possible than anywhere else. I call this place the Gap. The more I improvise, the more I am convinced that it is through the medium of these gaps -this momentary suspension of reference point- that comes the unexpected and much sought after "original" material. It's original because its origin is the current moment and because it comes from outside our usual frame of reference". (Nancy Stark Smith, 1990)

The most beautiful and ideal improvisation is the dancing body which is present in time and in space , the body which can unfold itself in a clearly described manner. The body is conscious in its own way. The mind has no longer a fixed idea but the body has. It is a physical experience, starting from a movement and ending in a movement. The body is extremely sensitive to the internal sensorymotori information as well as to his external senses. The cortical interference is reduced: the information doesn't have to travel all the way to the "top". The consciousness cannot deal with such an overload of information. But the body can
This is instant composition: the body is no longer shaping consciously its movement but is affecting time and space by momentary and instantaneously bodily actions. For the sake of my next argument I would like to make another remark. A distinction needs to be made between the moment that the body takes over and the moment that the body gets lost in its own movements. In improvisation it happens regularly that dancers lose themselves in space and in time. The body moves on without any reference to time, space and goal. In fact, the body is going nowhere. Furthermore: it seems that the body is stuck in its own movements. The body has lost its presence in space and in time. It's there and it is not there at the same time. But when the body takes over, the body will follow its own physical logic thereby responding to whatever goes on at that moment. I would suggest that the

Gap is not a place where the dancer is lost; I would suggest that the Gap is a place in which the mind is no longer a mental state but a physical state. It is a place or a moment in which the body follows its intrinsic logic, dealing with the tremendous amount of (somato-)sensory information on a proprioceptive level.
I claim that there is a big difference between the dancer who is lost in its movements and the dancer who's following its bodily logic. In both cases you could say that the body takes over. I would prefer not to do that. In the first case I would say that the body has no clue where it is going, where it is coming from and where it is at this particular moment. In the second case, I would say that the body definitely "knows" where it is coming from and where it is moving into. This knowing however is not a mental state, or a conscious state, but it is a physical state in which the proprioception plays a crucial part.
It is the possibility to attune to your own bodily sensations and at the same time attune to all the sensory information (vision, touch, sound especially) which derives from outside the body. It is a dynamic system which can react directly without cortical interference. This is especially the case with rapid movements and extremely complex movements (Rose, 1996). The mind has trouble keeping up but the body can remain its speed and velocity. And, this is a crucial assumption, the body can still take in all the sensory information from the direct environment. When I am lost in my movements, I believe that my body is no longer capable of attuning properly to all the incoming sensory information. The body is locked up inside: it is no longer communicating with the outside world. A dancer as well as an observer can sense the difference. You can see/feel when the dancer thinks his movements or when the dancer just moves and lets his body intuitively (re)act on the moment . However, you can also sense the difference between the dancer who is lost in his movements and the dancer who moves from a sharp and very present physical state. The mental awareness has become physical.

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