

Bodily movement – the fundamental dimensions

Gunnar Breivik

Introduction

Bodily movement has become an interesting topic in recent philosophy, both in analytic and phenomenological versions. Philosophy of mind has taken a fresh interest in the body, due to developments in the intersection between psychology, cognitive science, neuroscience and robotics (Hurley 1998; Searle 2004). Similarly philosophers in the phenomenological tradition combine Heidegger and Merleau-Ponty with brain research and empirical psychology (Gallagher 2005; Thompson 2007).¹ In this article I will mainly present and discuss insights from the phenomenological tradition since philosophers in this tradition were the first in modern age to show the bodily background and anchorage of perception, cognition and action. Furthermore they give valuable insight into movement itself and the role it plays in our lives.

Human movement has caused problems in the philosophical tradition. Philosophy from Descartes to Kant defined the human being as a mental subject in a material body. For Hume the human subject seemed to be located in an inactive body. The body was merely another object of experience. With such an attitude the subject must state “I am *an immobile observer of my body*.”(Todes 2001:44). Similarly I become a mover of (part of) my body. When I raise my arm I am therefore a user of my body. I raise my arm as I raise a stick. This mechanistic attitude toward the body still lingers on in many studies of motor learning and control. Furthermore the information processing paradigm that dominates in psychology, cognitive science and motor learning very often makes it difficult to understand the background and intentionality of bodily movement, how human bodies are oriented in space and the role of awareness and proprioception in bodily action (Dreyfus 1999; Searle 2004; Moe 2007). In this article I want to focus on just these problems. I will give examples of how recent philosophical insights from both the phenomenological and analytic tradition can contribute to a better understanding of human bodily movement. I will start with Heidegger’s contribution to overcoming the subject-object dichotomy and his new understanding of the primacy of the practical involvement with the surrounding world. Heidegger, however, in many ways neglected the role of the human body. Merleau-Ponty took a huge step forward when he focused on the bodily intentionality of our interaction with the world. The next step was taken by Samuel Todes who presented a better understanding of how we are bodily

oriented in space. After having seen how the body is oriented outward towards the environment it is proper that the final part of this article goes inward toward the role of bodily awareness and the role of proprioception in human movement. Through this presentation my goal is to contribute to a better understanding of what goes on in sport. I will therefore try to use examples from sport, especially football, to show the relevance of the new insights.

Heidegger and the primacy of the practical dealing with the environment

In his early work Heidegger made a lasting contribution by challenging the subject-object dichotomy. He did this by defining the human being, Dasein, as “Being-in-the-world.” Taylor (1995) has pointed out the enormous contribution Heidegger made in this respect.² The human subject cannot be defined in isolation since it is tied to the world in a primordial manner. Heidegger calls this the “originary transcendence”. Dasein discloses the world, let things be encountered in at least two different modes. The most primary is the practical mode where things are discovered in their functionality or instrumentality. The other derived mode is where we uncover things as objects with certain characteristics. Most of the time entities in the world are discovered in their functionality, which is taken in a very wide sense by Heidegger. “In our dealings we come across equipment for writing, sewing, working, transportation, measurement.”(Heidegger 1962:97) That which makes things suitable for such use is called their “equipmentality” (Zeughaftigkeit).

Heidegger’s lasting contribution here is to turn upside down the view that theoretical description and definition come first. He maintains instead that we do not start with looking at things, noticing their appearance, noticing form and shape, weight and colour. We instead immediately see whether things can be used for some purpose, how they can be tools or equipment. Heidegger here comes close to Gibson (1986) who maintained that the environment invites to be used, explored and played with. For children playing in the street some objects invite being thrown or kicked. Many different objects can be used as a football. The criterion for use is not how the object looks and can be described but whether it functions well enough.³

The next step is to see how pieces of equipment function in a context. Heidegger maintains that, in isolation, an item of equipment never really *is*, because its being is dependent upon a “totality of equipment, in which it can be this equipment that it is.”(Heidegger 1962: 97). Since an item of equipment never functions alone there is an inbuilt reference (Verweisung) in the equipment structure. Items of equipment refer to other equipment in the context, like “ink-stand-, pen, ink, paper blotting pad, table, lamp, furniture,

windows, doors, room.” Heidegger 1962:97). Similarly in the street the football pitch refers to the uneven loosely demarcated field, the improvised goal posts, the players on the two teams. From this minimal situation we can move up to the fully developed champions league game where the reference structure is much larger. But in both cases the football itself, the round ball, is meaningless unless it is understood in relation to other pieces of equipment, to feet and goal posts, in a larger reference structure⁴.

The next step is to see how pieces of equipment and the totality of the reference structure are constituted in relation to a practice. According to Heidegger each piece of equipment can genuinely show itself only in practice, like the hammer in hammering. In this practice it is not thematically grasped as such. We just use the hammer in a suitable non-thematic way. The equipment is used in a context and for some purpose. The carpenter uses the hammer to hammer in the nails in order to fasten the planks, in order to build the wall, in order to finish the house, in order that people can have shelter, in order to live the life they want. The end of this list of “in-order-to” and “towards-which” is the ultimate goal of a human life, that “for-the-sake-of which”(Worum-willen) all this is done. We ultimately end up with the deepest life goals, what human existence is all about. Heidegger calls this deepest life goal our “concern” (Sorge).

On the soccer field the football, the flat ground with its turf, the goal posts, the end lines and side lines, the corner poles, the other players and so on, get their meaning and place as part of the practice of playing football. The football player kicks the ball *in order to* pass it to the other players, *in order* that they can pass it further to other players on the same team, *in order to* get closer to the opponent goal, *in order to* get in a position to kick or head the ball into the goal, *in order to* score more goals than the opposing team, *in order to* win the match, *in order to* become the best team over a *season*, *in order to* succeed in a career as a football player, *in order to* lead a good life. It is in the end the decision to play football and, even more, to lead a life where football is an important and central part that is the ultimate “for the sake of which” all this is done. And likewise for all the other players. Heidegger’s analysis thus shows how bodily movements and sport practices constitute parts of meaningful life projects.

What seems to be lacking in Heidegger’s analysis is the concrete human body (Leder 1990). When Heidegger analyses the daily practices of the carpenter in his workshop the body is in a sense absent. It presents itself only indirectly. The equipmental totality of hammer-nail-plank-wall-room-house-living starts with the non-thematized hand of the carpenter and it ends with the life of the carpenter and his deepest life concerns. Heidegger describes well how the

hammer as equipment is possible only on the background of a world structured by purposes, references and assignments. But he does not discuss how the hand that holds the hammer likewise is possible only on the background of a body with its postures, capacities and tasks. So there is a double background; a bodily Dasein and a world of equipmentality. Heidegger has a lot to say about the world as a background for all human projects but has very little to say about the body as the operational background for the hands, the feet, the eyes and ears. This means also that to describe the reference context of football playing it is necessary not only to mention all the in-order-to references of purposes and goals that start with the foot that is kicking the ball. It is also necessary to take notice of the foot as part of a body with its structure, postures and capacities.

The project of playing football must be carved out on one hand as one concrete project among many in a world of equipmental contexts and possibilities. But it must also be carved out as one possibility of many for the feet and other limbs that are parts of the silent background of a human body with all its possibilities and capacities. So I think we must conclude that the body is discovered equiprimordially with the world. I would maintain that we understand our bodies in the same way and at the same time as we understand the world, i.e. by practical dealing with the environment. And this fundamental understanding, this disclosure, this transcendence towards the double background of body and world makes it possible to discover specific things, beings and projects. The originary transcendence of the self has a bodily dimension that is lacking in Heidegger's analysis.

Merleau-Ponty and the bodily being-in-the -world

Brentano and Husserl had illuminated the intentionality of the mind. Merleau-Ponty underlined the intentionality of the body. Central for Merleau-Ponty is that "my body appears to me as an attitude directed towards a certain existing or possible task. And indeed its spatiality is not, like that of external objects or like that of 'spatial sensations', a spatiality of position, but a spatiality of situation." (Merleau-Ponty 2002:114-115). For the football players on the field their movements and positions are defined and solicited by the movements of the ball and the other players. It is the situation that defines the body, its movements and positions. And more than that; good football players are able to read the situation before the ball is played. Therefore the best players tend to be at the right place at the right time. And more than that; they are ready for the action that the situation demands. Merleau-Ponty's idea of a proactive attitude is confirmed by recent studies in physiology. Alain Berthoz who is professor at the College de France, where he directs the Laboratory of Physiology and Action,

states: “The brain is not a reactive machine; it is a proactive machine that investigates the world. To become a ski champion, it is not enough for the skier to continuously process sensory cues and correct his trajectory; he must go over the run in his mind, and anticipate its stages and the state of his sensory receptors, foresee possible solutions to every error, take chances and make decisions before he makes a move” (Bertoz 2000:1)⁵

Merleau-Ponty furthermore maintains that our situational understanding also means that we focus on specific factors and cues that are relevant. He says: “If I stand in front of my desk and lean on it with both hands, only my hands are stressed and the whole of my body trails behind them like the tail of a comet.”(Merleau-Ponty 2002:115) Likewise the forward who dives for the ball coming from the right wing defines his movement with the front of his head that tries to steer the ball into the goal. In an even more concrete and direct way than in Merleau-Ponty’s example his body trails behind him like the tail of a comet.

For Merleau-Ponty the body is the active agent defined in relation to situations and tasks. The body defines a ‘here’ that in its turn is a laying down of the fundamental coordinates that anchor the active body in an object. By following the coordinates and anchoring itself in the surrounding objects, the active body faces and takes on its tasks. A study of movement and perception among international elite football players showed that they were always aware of their bodily position relative to other players. And they were ready for the most likely next moves.⁶ This is in accordance with Merleau-Ponty’s idea that I do not statically define the coordinates where my body is now, but I anchor my body in the coordinates of my next move. We do not place ourselves in the present but in the next situation. We lay down our bodily coordinates not where we are now but where we are next. We have the same strategy in relation to specific objects. “When I say that an object is on the table, I always mentally put myself either in the table or in the object, and apply to them a category which theoretically fits the relationship of my body to external objects.”(Merleau-Ponty 2002:116). This can be seen more clearly in the example of the forward who is trying to head the ball into goal. When the ball is kicked by the right wing he places himself in the ball, fixes himself in the ball and the movement of the ball totally determines his running, his movements and his posture. The anchoring of oneself in a moving object can sometimes lead to strange experiences. Baseball players tell that they sometimes feel that the baseball is moving slowly towards them, fleeting in the air, and there seem to be forces that draw the bat towards the ball so that it is impossible not to hit the ball and to hit it well.

According to Merleau-Ponty the body not only is in space but it inhabits space. And this is best seen in movement and its specific forms of intentionality. In one way we feel as

agents that move towards objects to deal with them, but at the same time the objects seem to invite us. Our bodies surge towards the objects we want to grasp as if called upon. It is thus not the agent that initiates movements and responses but rather “the task to be performed elicits the necessary movements from him by a sort of remote attraction, as the phenomenal forces at work in my visual field elicit from me, without any calculation from my part, the motor reactions which establish the most effective balance between them”(Merleau-Ponty 2002:120). Sean Kelly, building on Merleau-Ponty, discusses how the intention to grasp a coffee mug is in a sense led by the mug and it includes being responsive to the backside of the mug that I cannot see from where I am now. In a sense the grip is formed not only by me but by the mug that solicits the grip. Kelly concludes “we must say that I experience my grip as *being led* to form itself in a certain way, led by something other than myself, something that knows more about the hidden features of the mug than I am capable of knowing from here. I have to say that objects see one another, in other words, to account for the motor intentionality of my activity, an intentionality that does not belong entirely to me.”(Kelly 2005:102). For Merleau-Ponty the perceiving subject is not a self-transparent ego looking at the world from a fully illuminated perspective, but rather a body-subject involved with things in the world in a way that makes perception and action an interactive project of the subject body and the surrounding objects. Merleau Ponty speaks about what he calls the body as a motor power, a ‘motor project’ or a ‘motor intentionality’. This motor intentionality operates in various contexts as an optimizing agent. We have an ability to find the right relations to sizes and distances in our environment. “For each object, as for each picture in a gallery, there is an optimum distance from which it requires to be seen, a direction viewed from which it vouchsafes most of itself” (Merleau-Ponty 2002:352). This involves a dynamic attitude. Merleau-Ponty calls it “a tension which fluctuates round a norm.” In these passages Merleau-Ponty gives many good general descriptions of what goes on also in a football match. The players definitely sometimes take action and surge towards the ball or an opposing player. But many times it feels as if the task to be performed, for instance to pass the ball to a certain player, elicits the relevant action. Without having to decide and initiate a movement the ball sometimes draws from the player the relevant movement, for instance to hit it on a clean volley. And it feels as if there were invisible forces and tensions on the field which make it feel right to be in certain zones or run into certain positions. There are invisible vectors that create dynamic tensions that make the players behave in certain ways.

In some sports we use equipment or place ourselves in vehicles or boats. Merleau-Ponty gives very good descriptions of how we come to handle this type of equipment. He

thinks that in general we come to grip with things by placing ourselves in them. We break forth into them and in a sense transcend into them. It is by establishing this bond that we can come to feel what the optimal grip is and explore the various perspectives of the thing. Merleau-Ponty gives several examples of this motor understanding of the world. When driving a car one can see that one can get through an opening without having to compare the width of the opening with the outline of the car. Similarly a woman with a large feather in her hat can keep a safe distance from objects, and a man can walk through a doorway without having to measure his body to see if he gets through. For the blind man his stick has ceased to be an object and has instead become an extension of his body where he can 'feel' directly the objects he touches. There is no more comparison of the objective length of the stick and the objective distance to objects. Merleau-Ponty says. "To get used to a hat, a car or a stick is to be transplanted into them, or conversely, to incorporate them into the bulk of our own body". (Merleau-Ponty 2002:166). This is even truer in elite sport where athletes spend thousands of hours trying to become totally unified with their equipment. The race car driver feels as if his nerve endings reach down into the wheels and into the contact points of the wheels with the ground. He wants the car to be totally adjusted to the racetrack, its surface and curves. He inhabits the car. It is an extension of his body and he can wear it as a cloak, racing the track as if moving around the furniture in his home.

This familiarity with the motor space is achieved through our body and its habits. Merleau-Ponty therefore both says that "the body is our anchorage in a world" and a little later he talks about "the body as a mediator of a world" (Merleau-Ponty 2002:167). In this way he shows how our being-in-the world is mediated through our body. But this mediation is not open and explicit. Most of the time it is indirect and not thematized as such. This means that the body in a way disappears. It is the "the darkness needed in theatre to show up the performance." And further: "It is a Zone of not being in *front of which* precise beings, figures and points can come to light." (Merleau-Ponty 2002:115). Here Merleau-Ponty underlines what Heidegger in many ways left out; that the transcendence of the subject towards the world is also a bodily transcendence. In the same way as the world disappears as the tacit background for all our concrete and definite tasks and projects, the body disappears and becomes the tacit background for all our concrete skills and movements. It becomes "a dark zone", the necessary background for all our concrete motor projects. Paradoxically, while celebrating the body's role in expression, Merleau-Ponty typically characterizes it in terms of silence. The body is "the tacit cogito", "the silent cogito". Richard Shusterman points out that although surpassing other philosophers in emphasizing the body's expressive role, Merleau-

Ponty hardly wants to listen to what the body seems to say about itself in terms of its conscious somatic sensations, such as explicit kinaesthetic or proprioceptive feelings.”(Shusterman 2005:151) He speaks about the strength of the body in action but not about illness, disability, pain, fatigue or about the old body dying. Instead of just being impressed by the human body at its strongest we should, according to Shusterman, open up for practical efforts and conscious reflection to achieve more rewarding experience and action. The limping body can be improved.

Merleau-Ponty thus in various ways underline that the being-in-the-world is a bodily-being-in-the-world. The body is the third term standing out in the self-world structure. The body is important and yet it has to adjust itself to something bigger. It has to orient itself and find its place in a space with certain vectors and gravitational forces.

Going outward - Samuel Todes and bodily orientation in space

Samuel Todes’ doctoral dissertation from 1963 tried to push Merleau-Ponty’s work further. His dissertation, *The Human Body as Material Subject of the World*, was not published until 2001. Is a very interesting work, ahead of its time and relevant for the present philosophical discussion of bodily movement.

Like Merleau-Ponty, Todes underlines the holism of the body. The body parts are enveloped in each other. There is a system of equivalences between the different senses and an immediate understanding of the phenomenal body. Where Merleau-Ponty spoke in general terms about the body and its capacities for movement and action, Todes takes us several steps further. According to Todes we not only notice but *produce* the spatiotemporal field around us when we move and engage in actions. Todes maintains that: “The primary form of directed action is an intention of the body, a body-directedness, which first gives us the global sense of space and time presupposed by all our higher personal forms of directed activity, principally those of will and judgment.”(Todes 2001:65). This means that it is the body and its movements that in a fundamental sense lay down the groundwork of space-time coordinates upon which and inside which the so-called higher faculties must work.

Todes calls the intention of the active body its “*poise*” in dealing with things and distinguishes it sharply from the “*pose*” of the inactive body. As soon as I am poised I know *what* I am doing. I know what *I* am doing and I know about the surrounding *objects*. Poise is therefore both the internal coordination of the body and the skilful handling of things and persons about us. Todes says in his special terminology: “To be poised is to be *self*-possessed

by being in touch with one's *circumstances*." (Todes 2001:66). The circumstances are literally everything (persons, things, entities) that surround or stand around the agent. A football player is poised when he has control over his body, when he knows where his arms, legs and head are placed, when he is balanced and responds adequately to situations. But all his activities take place inside a spatio-temporal field that in a sense is created by the body and its movements, yet at the same time the field is independent of the player and he has to adjust himself to it.

The spatio-temporal field has two dimensions, a horizontal and a vertical. The horizontal field is the field of experiences where we meet and confront persons and objects. The horizontal field is anchored in us and centered in us, which means that the objects have positions relative to us. This is in contrast to the vertical field, which is not anchored and centered in us. Instead it is we who have to orient ourselves in relation to the field. We are located together with other persons and objects at the bottom of the vertical field, near the ground. The field is opened up between earth and heaven and is "a down-graded vertical field directed from heavens to the earth." (Todes 2001:123). For Todes the vertical field is the most important. He calls it "the field of all other fields". It is the field that contains the other fields. Most of the time we have to adjust ourselves to the vertical field. It is only in some activities that we are, in a sense, at "the center of a low-ceilinged practical field of vertical movement." (Todes 2001:122) With our small vertical movements we define what is up and down relative to our body and its reach. What we must stoop to reach is "down" and what we must stretch to reach is "up".

Whereas we define the horizontal field in relation to us, we have to define ourselves relative to the vertical field. In the vertical field we can be properly or improperly oriented. We can have head up and feet down or be upside down. "The vertical field is the field *in* which our body direction is oriented." (Todes 2001:123) This is in contrast to the horizontal field. We can be properly (or improperly) directed towards objects in the field but not towards the field itself. This is however possible in the vertical field, as when I find myself upside-down.

Sports play *in and with* the horizontal and vertical fields in many different and interesting ways. Some sports are totally dominated by activity in the horizontal field. The vertical field only plays a role because of the gravitational forces and the necessity of keeping balance and poise. Running and curling are two quite different examples of movement in the horizontal field. Diving and trampolining are activities that play in and with the vertical field. Many sports involve combinations. In football the horizontal is dominating but the vertical

field also plays a role in jumping and heading. The gravitational forces are influencing the curve of the ball and so on.

It seems that most sports explore the horizontal more than the vertical. There is more activity related to transporting oneself horizontally than vertically. The vertical is the constant gravitational factor in relation to which one has to adjust one's bodily position and which will influence the curve of all moving objects. Todes nevertheless maintains that there is "a phenomenological priority of the world-field – in which we must orient our off-centered selves – over the horizontal field of our self-centered experience of the world." (Todes 2001:124). This priority is reflected in the priority of balance over poise. Balance may exist in the vertical dimension without a corresponding poise in respect to the world around us. But it is not possible to have poise in relation to the circumstantial world without being in balance. Poise is the ability to cope effectively with the world around us. We have this capacity through our ability to stand upright, to balance ourselves in the vertical dimension. We need *equi-poise*, the balanced poise. "Directed poise flows from equi-poise as from a gyroscopic centre of our activity" (Todes 2001:124). We see this among the best football players. Zinedine Zidane was over many seasons one of the best players in the world. What characterized Zidane was his fantastic balance in all situations on the field. Through his balance he was able to make the right moves in difficult situations. His balance made him tough in contact with other players. He was hard to knock over or push away. His excellent technique and the ease and elegance of his dribbling and passes came from his "gyroscopic centre of activity".

If we lose balance we become clumsy. Our capacity to stand up and be in balance normally gives us the ability to act but not vice-versa. Our relation to the vertical field is different from our relation to the horizontal field in a deep important way. In the horizontal field we meet objects that give us resistance and we meet resistance from them. There is a push and pull, a coming together, a meeting. The vertical field is different. It is not possible to resist it. "The influence of the vertical field on its contents is not a particular influence *on* its contents *to* which they can react in any way – either by conformity or by resistance. It is a *field* of influence *in* which its contents first have and can exert their *own* various kinds of influence on each other." (Todes 2001:124-125). The vertical field thus exerts its influence not on us but through us. Our initial challenge in the world is to balance ourselves in this field of influence. It is not possible to fight it, challenge it or conform to it. Instead we need to set ourselves up, to align ourselves in such a way that we can deal effectively with things around us and be able to do what we want to do. "Balancing ourselves upright, we depend upon the

vertical field of influence to steady us for whatever we may have to do; to keep us well-balanced on earth – instead of drifting away from it, falling on it, or inclining at some angle to it.” (Todes 2001:125) This is true in all aspects of life and in all our bodily movement. But it is of special importance in sport. The well-balanced body is here a *conditio sine qua non* for efficient movement. In some sports like sumo wrestling it is what it is all about. It is about weight and balance and the gyroscopic centre of activity that one has in one’s body. In many ways Todes has set the human body right in relation to the environing space, not only as Heidegger and Merleau-Ponty did in relation to the equipment and the objects, but also to the horizontal and vertical fields that constrain and open up possibilities for human motor movement and action. But we have so far not discussed the role of bodily awareness in movement. If we are focused on tasks and situations as Merleau-Ponty indicated, does that mean that we can or should remain unaware of the body in movement. Is it only a dark zone, a background or something more?

Going inward - Brian O’Shaughnessy and the role of proprioception

Through our bodies we are not only directed outward, but also inward. One of the few analytic philosophers who has had a long and continuing interest in the role of bodily awareness and proprioception is Brian O’Shaughnessy. Through proprioception we know where our limbs are, we know our posture and how we are situated. But as O’Shaughnessy remarks, this proprioception “takes back seat in consciousness almost all of the time.”(O’Shaughnessy 1998:175). But potentially it can become important in many situations in sport. At least three situations should be mentioned. When novices learn a new activity there is a need to attend to position and movement of body and limbs. Similarly when a new or unfamiliar situation occurs, bodily attention and awareness easily appear. And when athletes practise in order to learn a new technique or perfect an old one, a conscious rehearsal of limb positions and movements becomes necessary. Athletes also report that under normal training, or even in competitions, a sudden awareness of one’s body and limb positions may occur. The problem is that we have at any instant a limited amount of attentional capacity and that “if attention needs in part to be absorbed in proprioception of the acting limb, it rather looks as if when we engage in intentional manipulative action the phenomenon of proprioception ought to be a discordant and distracting item, competing for our attention with both the act itself and (say) visual perception.”(O’Shaughnessy 1998:178) But according to O’Shaughnessy this seems not to be the case. When we play tennis we do not experience a conflict between the need to focus our attention on the ball and the arm. Does this mean that

proprioception drops out of the picture completely? Do we focus only on the arm and the ball and not on the body itself?

O'Shaughnessy makes clear that some activities are so ingrained in our bodies that they seem to need no proprioceptive attention at all. They become attentionally recessive and "invisible" to the agent. Special activities like tricks (whistling) or skills (darts) are examples. But O'Shaughnessy pursues cases where there is a competition for attention between some parts of the body and the environment. Even if the amount of attention needed for proprioceptive awareness is small there is nevertheless a possible distraction in relation to the main purpose, say hitting a ball. Take the case of hitting the ball in tennis. There is a competition for attention between looking at the ball and moving the racket. O'Shaughnessy thinks that whether there is a distraction depends on the content of the looking. If the content is studying the colour of the ball there is distraction. If it is studying the ball's path it is not. If it is however studying the parabolic curve of the ball there is a distraction. "And so it is clear that for perception not to distract, but to enhance and enable performance, the object-content must be of a special and indeed unique kind: it must be the path of the ball qua (say) object-of-a-volley."(O'Shaughnessy 1998:181) This means that it must include direction, speed, relation to available space and so on. In this case there are still two activities, that of moving the racket and that of looking at the ball, but they cease to be in conflict. The total amount of attention is still limited and must be divided properly between them. Here looking becomes functionally subordinated to the purpose of the activity of playing the ball. Proprioception would in a similar manner be functionally subordinated to the goal, probably further down in the hierarchy.

But is proprioception a problem? Is proprioception competing for attention when I play the ball at the same time as looking at the arm and does it become functionally subordinated in the same way? O'Shaughnessy uses the example of playing the violin where surely what goes on in the legs or feet is of little relevance and importance. Whereas what goes on in my arms and fingers is very important. Here an attentive awareness is needed if the playing of the violin is going to be successful. The proprioceptive awareness in certain body parts is important if the stroke is going to be successful. "In that case, three simultaneous and internally linked activities – looking, proprioceptive perceiving and stroking – must have been ushered into being by a single decision to act."(O'Shaughnessy 1998:182) The internal content of these activities must be ordered in a functional hierarchy that makes possible the well-executed stroke. Similarly in tennis. Also here there must be a hierarchy with certain priorities. The focus must be on the ball. Further down in the hierarchy there must be a

relevant focus on the arm. In this regard, it is important that the arm must be seen as a “tennis-arm” and not the arm as used in other contexts or for other purposes. And further down the hierarchy there must be a proprioceptive awareness of the arm and the body. I have a certain awareness or feeling of when the arm is angled or moved in the right way. Maybe this feeling is stronger when the proprioceptive awareness signals that something is wrong. But it is not only the arm that needs a certain proprioceptive awareness. The body is also present in one way or other since the movement of an arm is dependent upon the position and movement of the body.

This holism of the moving bodily subject is well described by Todes in the following example: “If I attempt to catch a fly ball it will normally not be sufficient to act limb by limb. However I prepare with my right hand to catch it, I will normally be unable to catch it (unless it is hit right to me) unless my whole body can help prepare me to catch it with my right hand, by constantly moving toward where the ball seems to be going so as to place me eventually in such a spot and oriented in such a way (facing the ball) that I can catch it with a skilful right hand.” (Todes 2001:47) There are different views about what kind of awareness this is. Hubert Dreyfus thinks that we deal directly with our bodies without any consciousness, mental representation or awareness at all. The body just responds, as when he says: “If one is expert at tennis and things are going well, what is experienced is one’s arm going up and it’s being drawn to the appropriate position so as to complete the gestalt made up of the court, one’s running opponent, and the oncoming ball. We not only feel that our motion was caused by the perceived conditions, but also that it was caused in such a way that it is constrained to reduce a sense of deviation from some satisfactory gestalt. Now we can add *that the nature of the satisfactory gestalt is in no way represented.*” (Dreyfus 1999:28-29). I think the problem is more complex than this, since in many cases one may feel, however dimly, the position not only of the relevant limb but the whole body and whether it is positioned and moving in the right way. Especially if one gets off balance or the posture is wrong, for instance in a serve, one is proprioceptively aware of the situation.

O’Shaughnessy goes even further than this. He thinks we have a proprioceptive awareness that includes the whole body. If I feel a tickle on my chin I can immediately scratch it. I know where it sits on my body. One possible theory, earlier endorsed by O’Shaughnessy is that “at any particular moment we must be aware of the presence and position of every sensuously differentiable point on the body outside.” (O’Shaughnessy 1998:182). This would need a sort of subliminal perception of the body outside in all its detail and stands in contrast to the common experience of *attentive selectivity*: A middle position

would then be that “attention culls what it needs, and discards what it does not, out of a much richer given set of data.” (O’Shaughnessy 1998:182) When I pay attention to a body part or use a limb intentionally, that limb will stand out as a figure on the background of the rest of the body. These background limbs will be proprioceptively perceived but less differentially and vividly than the limb that is in use. This view would also fit in much better with Merleau-Pont’s idea of the body as a background, a dark zone. And it also fits better with experiences of elite athletes in such different sports as marathon running and downhill skiing. They report distinct episodes of proprioceptive awareness and even conscious attention during races (Breivik 2007).⁷

Conclusion

In this article I have tried to discuss the consequences of the human bodily being-in-the-world in relation to sport. I tried to make a close reading of some selected topics in phenomenology and showed how they throw light on human embodiment in general and movement in sport in particular. I started with Heidegger’s views on the primacy of our practical dealing with the environment. Heidegger is important a) for overcoming the subject-object dichotomy, b) for showing how the enviroing world is understood primarily in its instrumental or equipmental capacity, c) for showing how the equipmental environment gets its meaning through practice. Heidegger’s insights throw light on football, how it is dependent upon a “world” of references and meaning that can only be grasped by playing football. Through Heidegger it is also possible to see how the connections and references go all the way from the football, the field, the goal and up to the meaning of the life projects of the players and the constitution of the “world” of football as a part of a community.

We found that in many ways the body is absent in Heidegger’s analysis. Through Merleau-Ponty we saw how the intentionality encompasses a bodily intentionality that is so central in sport. Through our bodily intentionality we are not directed at things and entities but face situations and tasks. Important in relation to sport, e.g. football, is the ability to foresee the next situation, to time one’s runs and be at the right place at the right time to receive a pass. Merleau-Ponty describes well how we are able through our motor intentionality to find the right solutions, the right distance, the optimal grip in relation to things and situations.

Through Todes we were able to place the human intentional body in a spatiotemporal field. We focused especially on the spatial field. Our bodies are oriented in a vertical field that in many ways is primary. To be well balanced in the vertical field is a necessary condition for

poise, for efficient actions. There are good illustrations of this both in football and other sports. The last part of the article went inward to the role of proprioceptive awareness. Through O'Shaughnessy we discussed whether proprioception has an important place or whether it must recede totally into the background in skilled movement. Obviously we have ability in some way to notice our total bodily position and action. We looked at two different solutions and a middle position. I think the middle position deserves further study. We are not fully conscious and not automata but are proprioceptively attentive when we need to be.

By looking at the basic structure of the environment (equipmentality), the relation to the environment (motor intentionality), the frames (spatiotemporal fields), and the awareness of the acting body (proprioception), we have focused on four central dimensions of the bodily-being-in-the-world as it is manifested in sport.

REFERENCES

Berthoz, A. 2000. *The Brain's Sense of Movement*. Translated by G. Weiss. Cambridge, MA and London, England: Harvard University Press.

Breivik, G. 2007. Skillful coping in everyday life and in sports; a critical examination of the views of Heidegger and Dreyfus. *Journal of Philosophy of Sport*. 34(2):116-134.

Dreyfus, H.L. 1999. The Primacy of Phenomenology over Logical Analysis. *Philosophical Topics*, 27, (2): 3-24.

Gallagher, S. 2005. *How the Body Shapes the Mind*. Oxford: Clarendon Press.

Gibson, J.J. 1986. *The Ecological Approach to Visual Perception*. Hillsdale, New Jersey: Lawrence Erlbaum Associates, Publishers..

Heidegger, M. 1962. *Being and Time*. Translated by J. Macquarrie and E. Robinson. San Francisco: HarperSan Francisco.

Hurley, S.L. 1998. *Consciousness in Action*. Cambridge, MA and London, England: Harvard University Press.

Kelly, S.D. 2005. Seeing Things in Merleau-Ponty. In *The Cambridge Companion to Merleau-Ponty*, edited by T. Carman and M.B.N. Hansen. Cambridge: Cambridge University Press.

Leder, D. 1990. *The Absent Body*. Chicago and London: The University of Chicago Press.

Merleau-Ponty, M. 2002. *Phenomenology of Perception*. Translated by Colin Smith. London and New York: Routledge.

Moe, V. F. 2007. Understanding the Background Conditions of Skilled Movement in Sport: A Study of Searle's 'Background Capacities'. *Sport, Ethics and Philosophy*. 1(3):299-325.

O'Shaughnessy, B. 1995. Proprioception. In *The Body and the Self*, edited by Bermúdez, J. L., Marcel, A. and N. Eilan. Cambridge, MA and London, England: The MIT Press.

Searle, J. R. 2004. *Mind A Brief Introduction*. Oxford and New York: Oxford University Press.

Shusterman, R. 2005. The Silent, Limping Body of Philosophy. In *The Cambridge Companion to Merleau-Ponty*, edited by T. Carman and M.B.N. Hansen. Cambridge: Cambridge University Press.

Taylor, C. 1995. *Philosophical Arguments*. Cambridge, Massachusetts and London, England: Harvard University Press.

Thompson, E. 2007. *Mind in Life. Biology, Phenomenology, and the Sciences of Mind*. Cambridge, MA and London, England: The Belknap Press of Harvard University Press.

Todes, S. 2001. *Body and World*, with introduction by H. L. Dreyfus and P. Hoffman. Cambridge, MA and London, England: The MIT Press.

Williams, A.M., K. Davids and J.G. Williams. 1999. *Visual Perception and Action in Sport*. London and New York: Taylor and Francis.

Wrathall, M.A. 2005. Motives, reasons, and causes. In *The Cambridge Companion to Merleau-Ponty*, edited by T. Carman and M.B.N. Hansen. Cambridge: Cambridge University Press.

¹ It is interesting that Hurley, coming from analytical philosophy, can use philosophers such as Wittgenstein as well as neurophysiology in her discussions. Like many phenomenologists, she sees perception and action as intertwined and discusses several alternatives to the classical Cartesian view. She discusses alternatives such as behaviourism, ecological theories, motor theories of perception and complex dynamic feedback systems, action as the control of perception and complex dynamic feedback systems.

A very interesting approach coming from the phenomenological side is presented by Thompson (2007), who combines neurophysiology, cognitive sciences and phenomenology. Thompson thinks that there has been a lot of progress in understanding the active sensorimotor approach to the world. Here he agrees with Gallagher (2005), who also works in the phenomenological tradition but incorporates recent empirical work in brain sciences.

² Charles Taylor illustrates the notion of being-in-the-world with football playing as an example. “We can draw a neat line between my *picture* of an object, and an object, but not between my *dealing* with the object and that object. It may make sense to ask us to focus on what we *believe* about something, say a football, even in the absence of that thing; but when it comes to *playing* football, the corresponding suggestion would be absurd. The actions involved in the game can’t be done without the object; they include the object. Take it away and we have something quite different – people miming a game on the stage, perhaps.” (Taylor 1995:12)

³ Not only objects but surfaces, places and animals or human beings can afford possibilities for use. “The medium, substances, surfaces, objects, places, and other animals have affordances for a given animal. They offer benefit or injury, life or death. This is why they need to be perceived”(Gibson 1986:143). Air is an instance: “Air downwards affords falling and is dangerous. Air forward affords passage and is safe.”(Gibson 1986:142). The theory of affordances is closely linked to his theory of perception. Gibson suggests “that what we perceive when we look at objects are their affordances, and not their qualities.” “Phenomenal objects are not built up of qualities; it is the other way around. The affordance of an object is what the infant begins by noticing.”(Gibson 1986:134)

⁴ The holism of our understanding is nicely illustrated by a story about differences in playing style between Brazilian and Argentinean football told by the deceased Norwegian-Argentinian social anthropologist Eduardo Archetti. Argentinians think that the Brazilians play the ball too much in the air. The ball should be kept on the ground. But why? The legendary Argentinian centre forward and coach Alfredo di Stefano used this argument: “What is the ball made of?” “Leather”. “Where does leather come from?” “It comes from the cow.” “What does the cow eat? It eats grass. Well the ball should be kept on the grass!”

⁵ Berthoz exemplifies the importance of foresight: “To catch prey that is moving at thirty-six kilometers per hour, that is, ten meters per second, a predator must anticipate its position in less than one hundred milliseconds and head for where the prey will be in a moment’s time. It must prepare the gesture of capture as well as that needed by the muscles to compensate for the weight of the prey and overcome its resistance.”(Berthoz 2000:3-4). Berthoz thinks that the computer model of the brain that has been popular in cognitive science is wrong. Symbolic and computational conceptualization does not help. The neural underpinnings do not support the idea that the brain is primarily a language machine. The brain is above all a “biological machine for moving quickly while anticipating”(Berthoz 2000:4).

⁶ Research of the visual search strategies on the football field shows that experienced football players use different search strategies from the less experienced. The expert players have a more extended and distributed search strategy. The extensive number of perceptual information sources they use necessitates utilisation of more eye fixations of shorter durations. This means for instance that “the expert players were more aware of the positions and movements of the players ‘off the ball’.”(Williams et al.1999:160)

⁷ The experience of elite alpine skiers reported in Breivik (2007) is in line with Berthoz’ views: “The ski champion cannot constantly be checking the state of all his sensory receptors; he mentally simulates the course

of his run down the slope, and it is only from time to time, intermittently, that his brain checks to see whether the state of certain sensory receptors is in accordance with its prediction of the angle of the knees, the distance from ski poles, and so on. These groupings of receptors are called configurations, and it appears that the brain checks configurations of specific receptors as it plans movement.”(Berthoz 2000:5).