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Searle, Merleau-Ponty, Rizzolatti – three perspectives on Intentionality and action in sport

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Abstract

Actions in sport are intentional in character. They are directed at and are about something. This understanding of intentional action is common in continental as well as analytic philosophy. In sport philosophy intentionality has received relatively little attention, but has more recently come on the agenda. In addition to what we can call ‘action intentionality’, studied by philosophers like Searle, the phenomenological approach forwarded by Merleau-Ponty has opened up for a concept of ‘motor intentionality’, which means a basic bodily attention and relatedness to the surrounding world. This conception is very relevant for the study of bodily actions as we find them in sports. However there may be even deeper layers. The identification of mirror neurons in the brain has opened up for a type of almost ‘muscular intentionality’ whereby a simple bodily movement like grasping a cup to drink seems to be intentionally controlled and orchestrated. My goal in this paper is to discuss the relation between different levels of intentionality, such as a) ‘action intentionality’ operating at a conscious cognitive level, as for instance when a player shoots a goal in football, b) the ‘motor intentionality’ directing the bodily movements when kicking the ball and c) the muscular ‘mirror neuron intentionality’ of the goal keeper which is in operation when the keeper is seeing how the kicker’s foot hits the ball. How are these different layers of intentionality related and how can they give a more nuanced and integrated picture of the body-mind in action in sports?

Key words: Sport, action, intentionality

Introduction

Actions in sport are intentional in character. They are directed at and are about something. This understanding of intentional action is common in continental as well as analytic philosophy (Husserl 1973; Searle 1999). In sport philosophy a growing number of studies, most of them coming from the phenomenological tradition, focus on topics relating to philosophy of mind and epistemology. Some recent studies discuss for instance the roles of skill (Ilundain-Agurruza; Breivik 2016; Birch 2016), consciousness (Eriksen 2010; Breivik 2013) and knowledge (Moe 2005; Hopsicker 2009; Breivik 2014) in sporting contexts. The role of intentionality has received relatively little attention, except for a few studies (Moe 2007; 2016; Breivik 2008). It is time to take a closer look at the concept of 'Intentionality' in relation to sport and sporting contexts. In addition to what we can call 'action intentionality', studied by philosophers like Searle, the phenomenological approach forwarded by Merleau-Ponty (2002) has opened up for a concept of 'motor intentionality', which means a basic bodily attention and relatedness to the surrounding world. This conception is very relevant for the study of bodily actions as we find them in sports. However there may be even deeper layers. The identification of mirror neurons in the brain (Rizzolatti & Sinigaglia 2008) has opened up for a type of almost 'muscular intentionality' whereby a simple bodily movement like grasping a cup to drink seems to be intentionally controlled and orchestrated.

My goal in this paper is to discuss the relation between different levels of intentionality, such as a) 'action intentionality' operating at a conscious cognitive level, for instance when a player shoots a goal in football (soccer), b) the 'motor intentionality' directing the bodily movements when kicking the ball, and c) the muscular 'mirror neuron intentionality' of the football player fine-tuning the ankle to hit the ball in the right way. How are these different layers of intentionality related and how can they give a more nuanced and integrated picture of the body-mind in action in sports? The solution that I will argue for in the following is that inside the frames of an action intentionality (Searle) there is a motor intentionality (Merleau-Ponty), and even a neuron intentionality (Rizzolatti), operating in the service of the action intentionality. But these lower-level forms of intentionality can also to some extent operate on their own.

I will firstly present in brief the historical background of the concept of Intentionality (with a capital 'I'). This will be followed by a presentation of the three perspectives mentioned above,

before I discuss how together they can enrich our understanding of Intentionality and action in sports.

The concept of Intentionality

The concept of Intentionality was developed by the German philosopher Franz Brentano (1838-1917) who maintained that our psychic acts are always directed at something.ⁱ Husserl (1859-1938) developed Brentano's ideas further and maintained that "all conscious experiences (*Erlebnisse*) are characterized by 'aboutness'. Every act of loving is a loving *of* something, every act of seeing is a seeing *of* something" (Moran 2000, 16). Husserl's ideas also came to play a role in analytic philosophy, especially in the philosophy of mind. Searle's book 'Intentionality', which appeared in 1983, was a landmark in the study of intentionality inside the analytic tradition. The uncovering of the logical features of intentional states was especially innovative and created a new paradigm in the philosophy of mind.

Searle defines intentionality as "that property of many mental states and events by which they are directed at or about or of objects and states of affairs in the world" (Searle 1999, 1). One must distinguish between Intentionality (with a capital 'I') and intending, intentions, and so on.ⁱⁱ Intentions are just one form of Intentionality among others. Not all mental states and events have Intentionality. There are forms of nervousness, elation and undirected anxiety that are not Intentional. They are not about anything. Undirected anxiety is just anxiety. Similarly, many Intentional states are not conscious. These include beliefs that I am not conscious of now, like where and when I was born, that the sun will rise tomorrow, and so on. These beliefs are unconscious, according to Searle, but not repressed in a Freudian sense. They are just beliefs that one does not think about.

In opposition to externalists who maintain that mind states "really" are states linked to and caused by external phenomena, Searle is an *internalist* claiming that such states are totally "between the ears". They are experienced in the mind and realized in the brain which for Searle simply means that the experiencing mind is a higher-order feature of the brain. Here, Searle is in disagreement with Heidegger, Merleau-Ponty and recent *enactivism* (Thompson 2007).ⁱⁱⁱ

In spite of differences there is a common understanding in continental and analytic philosophy concerning Intentionality. There is agreement about what Intentionality means and about the central characteristics of Intentionality. I will now try to show that analytic philosophy in

Searle's version is especially well suited to identify the logical structure of intentional actions. I will use a situation from football as a model case.

A Case

It is in the middle of a football match between Norway and Sweden.^{iv} Norway gets a penalty kick. The Norwegian player N places the ball at the eleven-meter mark. He takes a few steps back, runs towards the ball, places his left foot close to the ball and with the inside of his right foot shoots the ball into the upper right corner of the goal with a slight screw. The Swedish goalkeeper S dives to his left but is unable to reach the ball. The player N scored a goal for Norway by an intentional action. How can we best understand this intentional action?

Searle and the structure of intentional actions

According to Searle (1999) we have four elements here that need to be understood and connected in the right way: the prior intention, the intention in action, the bodily movement, and the action.

The player had a representation of what was going to happen. The representational content of *the prior intention* can be expressed as follows: "I perform the action of taking a penalty kick by way of carrying out *this* action." The prior intention makes reference to the whole action as a unit and not only to the movement. And it is *causally self-referential*, since player N's intention (of shooting the ball into the goal) requires that the actual shooting of the ball into the goal must be caused by the very intention (of shooting the ball into the goal).

The intention in action can be expressed as follows: "The football is kicked into the goal as a result of this intention in action." The action contains two elements: the experience of acting and the movements. The action here is also causally self-referential. But there is a difference between the prior intention and the action. The prior intention contains the whole action of taking a penalty kick as the "Intentional object". The intention in action has, however, the movement as the "Intentional object." Another difference, which I think is very crucial in relation to sport, is that the intention in action is much more determinate than the prior intention. The prior intention of taking a penalty kick is more general and less specified compared to the taking of the penalty kick in a certain way, running towards the ball with a

certain speed, trying to fool the goal-keeper, trying to shoot the ball in the upper right corner, giving it a last screw, and so on. All this is performed “in action” and need not be part of my prior intention. It is just the way I take the penalty kick. But it is done intentionally. It is not some supernatural power suddenly controlling my body and my feet being moved without my intervention. It is all intentional, even if I may not be able to perform as well as I wanted; not able to control my movements as well as I wanted.

There is then a causal link between prior intentions and movements. The prior intention causes the action. I have the prior intention to perform a penalty kick and therefore I do it. The action of taking the penalty kick consists of the intention in action (which is identical with the experience of acting) and the bodily movements. We can therefore also say that the prior intention causes the intention in action, which causes the bodily movements.

Intentional levels

Many actions in sport are complex actions where the intentions may go far beyond bodily movements or even sport. When we analyse specific bodily movements or skills they are part of larger structures, such as games, sports, national interests and international relations.

Suppose the penalty kick took place in a setting where two strong rivals met. Norway played Sweden in football and the score was 1-1 and it was in the last minute of the match. We can say of player N that he moved his right foot, he kicked the ball, he shot a goal, he made Norway win, he struck a blow to Sweden, he showed Norway is best. Let us say that the player had the intention to show that Norway is best. Each of the statements is systematically related to each other, some of them causally, such as kicking the ball, shooting the goal and winning. The statements taken together with the causal and other relations make up the conditions of satisfaction for one single intention – showing that Norway is best.

We could move further up or down the list of events. We could say that the player produced neuron firings in his brain, contracted certain muscles in his body, moved his right foot etc. But this sounds strange. Firings in the brain are not something one intentionally produces. It is an unintended occurrence that happens as a result of an action. Searle introduces the notion of a *basic action*: “A is a basic action type for an agent S iff S is able to perform acts of type A and S can intend to do an act of type A without intending to do any other action by means of which he intends to do A” (Searle 1999, 100). This means that what counts as a basic action is relative to the agent and his/her skills. What is basic for one agent need not be basic for another. Searle uses the example of making a right turn which may be a basic action for a

good skier, but for a novice it is performed by a series of movements. It also leads to the consequence that two agents may perform the same movements but for one it is basic and for the other it is not. For the individual agent the division may not be clear and may change over time as one becomes more skilled.

Actions have consequences. In many cases we do not know the consequences but in some cases we do. When we have foreknowledge of a consequence this does not mean that we must intend that consequence. A dentist may know that she will hurt a patient but this does not mean that she intends to do it. If a football player makes a foul that leads to a penalty kick this does not mean that the player intended to bring about the penalty kick. To foresee a possible consequence of an action is not the same as to intend it.

Networks and the “Background”

Mental states typically exist in networks. Searle speaks of a ‘network of Intentionality’. If I own a football I have a belief that it is a ball that is possible to kick and that can be used by two teams trying to kick the ball between goal posts, and so on. Furthermore, such networks are dependent upon skills and capacities of various kinds. If one follows the threads in the network one ends up “with a set of abilities, ways of coping with the world, dispositions and capacities generally that I collectively call the “Background” (Searle 2004, 121). If I have the intention to play football I must take for granted that I have the relevant skills to take part in the game. Here and in many other cases one needs a background of “know-how” (Breivik 2008; 2014).

Searle tries to develop a sort of geography of the background, distinguishing between a biological “deep Background” and a cultural “local Background”. A sport like football is thus dependent upon the deep biological Background with its basic capacities like running, jumping, turning, keeping balance, and so on. But football is also dependent upon a local Background that defines what counts as relevant in football, like not using your hands, trying to shoot a ball into a goal in certain ways. In Suitsian terms football playing is dependent upon *pre-lusory* as well as *lusory* skills and attitudes.^v

Searle changed his views about the Network and especially the Background over the years, as well documented by Moe (2007). But his overall picture remained stable. Intentional phenomena only function within a set of Background capacities that are not themselves Intentional. What remains open, according to Moe, is whether the Background capacities

should best be understood as higher-order phenomena close to intentional phenomena or as lower-order neurophysiological phenomena that simply enable higher-order functions (Moe 2007, 318). I will come back to the working of neurophysiological capacities in the discussion of Rizzolatti.

Phenomenology, Merleau-Ponty and the notion of a ‘motor intentionality’

Whereas the analytic tradition, represented by Searle, has analyzed the logical structure of intentional actions, phenomenological description is needed to give a fuller picture of how human beings experience and intentionally deal with their ‘being-in-the-world’, to use Heidegger’s key notion. Human existence is a continuous transcending and practical coping with the surrounding world. We primarily use things as equipment and only secondarily inspect them in a detached theoretical mode of understanding. In Heidegger’s work the human body is, if not absent, at least not present enough. This was corrected by Merleau-Ponty who showed convincingly how the human body is not only a *body-object* but a *body-subject*. I relate to my body not as a passive passenger in a vehicle, but I am actively involved and coping with the world in and through my body. It is through the active body as a *medium*, that I relate to the world and immediately know how to relate to people and handle pieces of equipment.

Merleau-Ponty says that “my body appears to me as an attitude directed towards a certain existing or possible task” (Merleau-Ponty 2002, 114). This intentionality of the body includes a form of knowledge that is exemplified in many different ways on the sporting field (Breivik 2008). For football players their movements and positions are defined and solicited by the movements of the ball and the other players. Therefore the best players tend to be at the right place at the right time. They are ready for the action that the situation demands.

Skilful behaviour is taking place in daily life as well as in sports. We are able to skilfully manoeuvre and cope with the enviroing daily world when we turn a doorknob and walk through a door or grasp a coffee cup and drink from it. When playing tennis we take a firm grip on the tennis racket before the serve, throw the ball up in the air and hit it skilfully. Merleau-Ponty maintained that neither the empiricist nor the intellectualist are able to account for what happens. The empiricist will explain it by reflex arcs and the intellectualist by cognitive processes. According to Kelly: “The empiricist account fails because its purely muscular vocabulary doesn’t allow it to distinguish between mere reflex movements and directed skilful motor actions. On the other hand, the intellectualist account fails because its

purely cognitive vocabulary doesn't allow it to distinguish between unpremeditated motor actions like grasping an object, and premeditated, cognitive actions like pointing to one" (Kelly 2000, 166). Between the muscular and the cognitive there is a kind of phenomenon that Merleau-Ponty calls "motor intentionality": "[...]we are brought to the recognition of something between movement as a third person process and thought as a representation of movement – something which is an anticipation of, or arrival at, the objective and is ensured by the body itself as a motor power, a 'motor project' (*Bewegungsentwurf*), a 'motor intentionality'" (Merleau-Ponty 2002, 104).

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." He thinks that in general we get to grips 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 can explore the various perspectives of the thing.

With the concept of 'motor intentionality' Merleau-Ponty throws light on tricky problems connected with famous patient cases like the Schneider case. Schneider was able to grasp his nose but not to point to it. Merleau-Ponty claimed that pointing and grasping are based on two different sensorimotor processes. Traditional psychological research on limb movements is unable to account for this, according to Kelly. Rapid movements include two successive phases, "initial adjustment" and "current control". After setting up the body in the general direction the movement is executed and a sensory feedback system is used to hit the target. The problem with this model is that it is not able to distinguish between pointing and grasping. According to Merleau-Ponty and Kelly the grasping movement does not apprehend the object in an objective three-dimensional space. Rather, there is a type of bodily knowledge of places surrounding the body which means a co-existence with those places. There is thus a direct access to these objects. This means that: "From the outset the grasping movement is magically at its completion" (Merleau-Ponty 2002, 104). In grasping there is no "current

control phase. The movement is set up right from the start to include all specifications, including size, shape, orientation, weight, fragility and contents” (Kelly 2000, 176).

Different playing modes

The distinction between a grasping and pointing movement is often referred to as a distinction between concrete and abstract movement. Moe (2016) finds this to be a parallel to Gallwey’s (1974) distinction between playing *in the zone* mode and playing *in the trying* mode. The trying mode, that is the typical beginner’s mode, is characterized by controlled, slow and deliberate processing whereas playing in the zone is characterized by automatic processing that is fast, effortless, parallel and “non-volitional in the sense that it is difficult to modify it once it has been routinized” (Moe 2016, 225). The two modes are then linked to the difference between motor and cognitive intentionality. Moe, following Kelly, maintains that a main difference between the motor and cognitive intentionality is that for motor intentionality the characteristic logical distinction between the content and the attitude of an intentional state does not apply. “For motor-intentional activities, there is no independently specifiable content toward which the subject can have an attitude. This is because motor-intentional activity identifies its object in such a highly specific and context-sensitive way that any attempt to take up that specification of the object as such changes it into something other than it was at the time it was had” (Kelly 2003, 133).

Moe uses the examples of the Danish football player Michael Laudrup who, in the middle of a game, performed a fast dribble and said ‘It is just something you do, just like that!’, and similarly refers to the American basketball player Larry Bird who had passed the ball without realizing what he had done (Moe 2016, 258). Here Moe claims, following Kelly, that there is no separately identifiable mental content that can be realized. Only afterward, reflecting on what happened can one find a content, but not in the middle of the situation. But is this so? Searle would say that even if there was no prior intention there was an intention-in-action in Laudrup’s dribble and Bird’s pass. The movements were not simply automatic reactions to solicitations in the environment but reasonable acts as part of a game situation. A dribble and a pass have conditions of satisfaction and thus a specifiable content, but not beforehand, only ‘in action’.

Moe and Kelly, following Merleau-Ponty, seem to think of the specific and context-sensitive optimization of reactions relative to a natural environment. But sports are permeated by rules, restrictions and obstacles. So, what is optimal relative to a natural environment need not be

optimal in sports. So Laudrup's fast reactions must be according to the sport-specific rules and cannot include using his hands and nor can Larry Bird's be using his feet. This means that the fast seemingly unconscious actions and reactions from players are conditioned and directed by sport rules and, consequently, are cognitively loaded. Motor intentionality is influenced by cognitive intentionality and is in many sporting situations in the service of cognitive intentionality. At the same time, motor intentionality is more than cognitive intentionality since it can function as an optimizing agent in situations devoid of cognitive intentionality, as in finding the right distance from a picture in an art gallery.

Motor and cognitive intentionality are not totally different. There is an overlap. Moe (2016) also warns about making too sharp a distinction between cognitive and motor intentionality. He is right. The motor intentionality is permeated by cognitive intentionality which "uses" the motor knowledge to succeed in sports. It seems as though some authors follow Merleau-Ponty to the point where the body acts on its own and then it becomes quite unclear who and what the acting Self is. I would argue that in sports, at least, the motor intentionality is in service of a cognitive intentionality which aims at doing what is necessary and right and in accordance with the purpose of sports: to win by following artificial rules.

Rizzolatti on 'mirror neurons' and the consequence for sporting actions

Merleau-Ponty's idea of a motor intentionality to some degree gets support from recent neuro-physiological research. As sport philosophers we should welcome this and take notice of it. Especially interesting is the discovery of 'mirror neurons' which can help to explain how we can immediately understand and relate to our environment, also in sports.

When doing single-cell recordings of neuron firings in Macaque monkeys Rizzolatti and colleagues made an astonishing discovery (Rizzolatti & Sinigaglia 2006). When observing an experimenter lifting a cup to drink, both the sensory and the motor neurons in the monkey's brain area F5 fired. If we presuppose that humans react in a similar way this means that when I see a person lifting his hand to his mouth to eat, I respond not only with a visual response, but a motor response. My brain fires at the same location as the brain of the other person. This means that we have more than a perceptual-cognitive understanding, but an immediate motor understanding of what other agents do. And, furthermore, it seems that it is the intentional character of the action that is important. I know immediately what the action is about and I

respond with neuronal firings according to the relevant intentional pattern (lift the hand to mouth to eat). It means that: “In humans, as in monkeys, the sight of acts performed by others produces an immediate activation of the motor areas deputed to the organization and execution of those acts, and through this activation it is possible to decipher the meaning of the ‘motor-events’ observed, i.e. to *understand* them *in terms of goal-centred movements*. This understanding is completely devoid of any reflexive, conceptual and/or linguistic mediation as it is based exclusively on the *vocabulary of acts* and *motor knowledge* on which our capacity to act depends” (Rizzolatti & Sinigaglia 2006, 125).

So, we have a vocabulary of acts that is directly related to the identification of movements and goals and it is operating beneath a cognitive or reflexive level. There are two problems that surface here. One is whether this vocabulary is the same as or similar to Merleau-Ponty’s idea of ‘motor intentionality’ or whether it is at a deeper level. And, secondly, if this goes on in the brain, does the body play any role, in addition to the brain or on its own? Or the other way around: when Merleau-Ponty speaks of the body, is the brain included or is the body for Merleau-Ponty the same as the brain that Rizzolatti and colleagues study?

Complex chains and human action

The new findings are not only about mirror neurons but motor neurons in general. According to Rizzolatti and Sinigaglia motor neurons do not operate only in discrete events but are formed into smooth acts in chains: “The ‘grasping-neurons’ are inserted in pre-formed chains that code the entire action, in such a way that each neuron codes the grasping, but is also connected to the successive motor act, guaranteeing fluidity of the action” (Rizzolatti & Sinigaglia 2008, 109). And even more surprising and interesting, in humans the ultimate goal of the action makes a difference. When studying different actions related to eating, drinking and clearing a table the researchers found that neurons were activated differently depending upon the intention (grasping a cup to drink or to clear away), the action (using the whole hand or a precision grip), and the context (a table before or after a meal).

Neurons are thus coded according to the meaning and intention of the action and not according to the ‘objective’ movements, which could be very similar across intentions, actions and contexts. Different goals mean different neuron activations even if the movement is the same. For instance: “Bending the index fingers triggers a neuron when grasping but not when scratching”(Rizzolatti & Sinigaglia 2008, 23). And same task means identical neuron activation even if the movements are different: a specific neuron “was seen to fire when the

animal picked up a morsel of food with his mouth (A), with the contralateral hand (B), and the ipsilateral hand (C)” (Rizzolatti & Sinigaglia 2008, 23). We do not know, as yet, whether the same mechanisms operate on more complex action levels. But if so, it would mean that the goalkeeper (S) in our example will have a task-related firing at a specific place in the brain where the intention is to stop the ball whether this will be with the hand, the foot or the body.

Studies show that training will influence the neuronal coding system. Good performers have stronger mirror neuron firings. For an experienced goal keeper like S the mirror system “[...] is able to code both the goal of a motor act and the movements of which the act is composed” (Rizzolatti & Sinigaglia 2006, 124). The goalkeeper thus ‘reads’ the player taking the penalty kick, his/her intention and the possible feint. The reading is taking place in the goalkeeper’s motor neuron system and not as a cognitive representation. But I think nevertheless that the goalkeeper must choose among a set of possible acts that include both the goal of the motor act and the movements of which the act is composed. After all there are different response possibilities. Goal keepers are not robots. Invitations to act, like a feint, can be turned down.

Invitations to act

It is not only goalkeepers that are invited to act. According to Rizzolatti and Sinigaglia we perceive and understand the environment as possible things to do and invitations to act: “We thus “categorize the ‘seen’ object as *graspable in this or that manner, with this or that grip, etc. endowing it with a ‘meaning’ that it otherwise would not have had”* (Rizzolatti & Sinigaglia 2006, 50). This understanding takes place at a very basic neuronal level: “There is no doubt that this ‘understanding’, which is ‘pragmatic’ in nature, does not in itself determine a semantic representation of the object, on the basis of which it would be identified and recognized as a *cup of coffee* and not just as *something that can be picked up by hand*” (Rizzolatti & Sinigaglia 2006, 50-51). But there is a problem here, since in the game of football the ball is not simply a round ball, but an object that is semantically loaded and apprehended as a football that one must not grasp with one’s hands. Again there seems to be no clear division between a cognitive-semantic and a pragmatic-motor understanding.

Rizzolatti and Sinigaglia seem in several ways to confirm on a neuronal level what Merleau-Ponty referred to as a ‘motor power’ or a ‘motor intentionality’. Rizzolatti and Sinigaglia also find that movements are directed at goals, they are intentionally anchored in the goal. Picking up a ball is a combination of two processes, reaching and grasping, where one could imagine that reaching precedes grasping. The neuronal studies of Rizzolatti and co-workers

show that the grasping starts simultaneously with the movement of the arm. The hand assumes the shape needed to grasp the ball right from the start. This is in accordance with the views of Merleau-Ponty and Kelly. Movements are magically at their completion. We anchor our movements in the intended aims, goals and objects.

But would not this lead to stereotyped movements with too little flexibility? Suppose in a tennis match that a player goes to the net and the ball from the other player hits the top of the net and changes direction and speed. Immediately the player changes direction, speed and positions her racket according to the new situation. Obviously there is no magical completion at the goal, since the goal has changed. It is a new goal and to reach it was even more magical since it involved a complete change of movement and direction. Either the new goal-setting took place unbelievably fast or there is a switching mechanism that allows for fast changes under way. I do not know how Rizzolatti would account for this. One could point to the difference between two types of mirror neurons: the *strictly congruent* and the *broadly congruent*. If a mirror neuron is strictly congruent the observed and the executed action have virtually identical neural activation. If it is broadly congruent the observed and executed acts are connected, but not identical (Birch 2017, 3). The broadly congruent could thus allow the responding player to be open to surprises. So when we are pretty sure of what will happen we operate on a strictly congruent level and when we expect surprises, like in the tennis case, we operate broadly congruent.^{vi}

In conclusion, Rizzolatti's research in many ways confirms insights from Merleau-Ponty. We have an immediate understanding of our environment. This understanding is not only perceptual and cognitive but a motor understanding where the environment is scanned for 'invitations to act' (affordances). Rizzolatti gives us a much more precise and detailed understanding on a neuronal level of how humans interact with the surrounding world. There seems to be a non-semantic, pragmatic *vocabulary of acts* on a neuronal level in the brain.^{vii} But this vocabulary of acts does not operate on itself. "The existence of mechanisms which control the mirror neuron system is substantiated by a wealth of data, most of which is clinical (Rizzolatti & Sinigaglia & Sinigaglia 2006, 151. The mirror neuron system is serving higher-order cognitive functions in humans. This lends some support not only to Merleau-Ponty's views, but indirectly also to Searle's. The firings of the mirror neuron system are in the service of the tennis player trying to win points according to tennis rules.

In conclusion

I have tried to show that there is something to be gained from combining three different perspectives on the problem of Intentionality and action in sport. Much of what goes on in sport is based on conscious and deliberate decisions and acts. I think Searle gives a good analysis of the logic and structure of Intentionality and intentional actions that can be used in sport contexts. A problem with Searle's account is that, in my opinion, his *internalism* does not allow for an interactive picture of athletes in their interaction with others and the environment. For Searle everything goes on in the brain, even the conception of a "Background". Merleau-Ponty brings forth a perspective which makes it possible to get closer to the immediate bodily dealing with sporting environments. There is a motor intentionality operating at a more basic level than the conceptual and declarative. This motor intentionality is based on a direct practical knowledge of what one can do and how the world functions. This motor intentionality operates in many cases in the service of cognitive intentionality but may also operate on its own. Rizzolatti and colleagues' work confirms Merleau-Ponty's ideas of a motor intentionality and shows that the motor neurons in the brain are intentional, i.e. operating according to tasks and goals and not objective movements. What remains unclear and to be discussed is whether the body has been reduced to neurons and brain activity or whether there is a body knowledge that gives an extra dimension to what goes on in the brain. After all we are not brains in a vat.

In conclusion, I would argue that neuronal and motor intentionality operate in the service of higher order cognitive intentionality, and as such help the Norwegian player to deliver a penalty kick that results in a goal for Norway and a blow to Sweden.

References

- Birch, J.E. 2011. *In the Synaptic Cleft*. PhD diss. Norwegian School of Sport Sciences.
- Birch, J.E. 2016. "Skills - do we really know what kind of knowledge they are?" *Sport, Ethics and Philosophy*, 10 (3): 237-250.
- Breivik, G. 2008. "Bodily movement – the fundamental dimensions". *Sport, Ethics and Philosophy*, 2 (3): 337-352.
- Breivik, G. 2013. "Zombie-like or superconscious? The role of consciousness in elite sport." *Journal of Philosophy of Sport*, 40 (1): 85-106

- Breivik, G. 2014. "Sporting knowledge and the problem of knowing how," *Journal of the Philosophy of Sport*, 41 (2):143-162
- Breivik, G. 2016. "The role of skill in sport". *Sport, Ethics and Philosophy*. 10 (3): 217-221,
- Eriksen, J. W. 2010. "Mindless Coping in Competitive Sport: Some Implications and Consequences", *Sport, Ethics and Philosophy*, 4(1): 66-86,
- Gallwey, W.T. 1974. *The inner game of tennis*. Rev ed. New York, NY: Random House.
- Hopsicker, P. 2009. "Polanyi's "From-To" Knowing and His Contribution to the Phenomenology of Skilled Motor Behavior." *Journal of the Philosophy of Sport*, 36: 76-87
- Husserl, E. 1973. *Logical Investigations*, trans. J. N. Findlay, London: Routledge [1900/01; 2nd, revised edition.3]
- Ilundain-Agurruza, J. 2014. "Riding the wind – Consummate performance, phenomenology, and skillful fluency." *Sport, Ethics and Philosophy* 8 (4): 374–419.
- Kelly, S.D. 2000. "Grasping at Straws: Motor Intentionality and the Cognitive Science of Skillful Action." In *Heidegger, Coping, and Cognitive Science: Essays in Honor of Hubert L. Dreyfus - Vol. II*, eds. Mark Wrathall and Jeff Malpas. Cambridge, MA: MIT Press, 161-177.
- Kelly, S.D. 2003. "Edmund Husserl and phenomenology". In *The Blackwell guide to continental philosophy*, edited by R.C. Solomon and D. Sherman. Malden, MA: Blackwell: 112-42.
- Moe, V. F. 2005. "A Philosophical Critique of Classical Cognitivism in Sport: From Information Processing to Bodily Background Knowledge." *Journal of the Philosophy of Sport*, 32 (2):155–183.
- Moe, V.F. 2007. *Understanding Intentional Movement in Sport*. Ph.D. diss. Norwegian School of Sport Sciences.
- Moe, V.F. 2016. "On phenomenological and logical characteristics of skilled behavior in sport: cognitive and motor intentionality". *Sport, Ethics and Philosophy* 10 (3), 251-268.
- Merleau-Ponty, M. 2002. *Phenomenology of Perception*. Translated by Colin Smith. London and New York: Routledge.

Rizzolatti, G. & Sinigaglia, C. 2008. *Mirrors in the Brain*. Oxford: Oxford University Press.

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

Searle, J. R. 1999. *Intentionality. An essay in the philosophy of mind*. Cambridge: Cambridge University Press.

Suits, B. 1973. "The Elements of Sport," in *The philosophy of Sport: A collection of Essays*, edited by R. Osterhoudt. 48-64. Springfield, Ill.: Charles C. Thomas Publisher.

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

Varela, F. J., Thompson, E., & Rosch, E. 1991. *The Embodied Mind: Cognitive Science and Human Experience*. Cambridge, MA.: MIT Press.

ⁱ Brentano writes: "There is no hearing unless something is heard, no believing unless something is believed; there is no hoping unless something is hoped for... and so on, for all other psychological phenomena." Brentano RW 14 cited from Moran 2000:48

ⁱⁱ In the section about Searle I use the distinction between Intentionality and intentionality to a certain extent. This is not done in the sections about motor and neuronal intentionality.

ⁱⁱⁱ *Enactivism* is a theory developed by Varela, Thompson and Rosch (1991) in their book *The Embodied Mind*. The key ideas are: 1) "Living beings are autonomous agents that actively generate and maintain themselves....," 2) "the nervous system is an autonomous dynamic system...", 3) "cognition is the exercise of skillful know-how in situated and embodied action...", 4) "a cognitive being's world is not a prespecified, external realm, represented internally by the brain, but a relational domain...", 5) "experience is not an epiphenomenal side issue, but central to any understanding of the mind..." (Thompson 2007,13). Especially the fourth idea brings enactivism close to Heidegger's and the phenomenological tradition's views.

^{iv} Sweden is the Big Brother and it is especially important for Norway to beat Sweden. As the slogan goes "The most important thing is not to win but to beat the Swedes." The humour and jokes are abundant on both sides, mostly good-natured. Norwegians say: We must admit that the Swedes have something we don't have: They have good neighbours!

^v Suits (1973) distinguishes between the prelusory act of crossing a line and the lusory act of crossing the line as part of a competitive and rule-governed race. While Dreyfus concentrates on how bodily acts are performed according to attractions and invitations by the enviroing world Searle is focused on bodily acts as parts of artificial rule-governed sporting contests.

^{vi} Birch (2016) argues that mirror neurons combined with motor knowledge make us able to understand a motor action at an incredible early stage: "Without mirror neurons, the tennis ball served by Djokovic would probably be way behind you (or Federer) before your arm began to move. Thanks to the mirror neuron system, already in the throw up we begin to understand where the ball is coming and start a countermove" (Birch 2016, 13). But the problem is when something unforeseen suddenly happens, what then?

^{vii} Even if there is a connection between mirror neurons, vocabularies of acts and intentional actions we do not know the exact nature of this connection. Rather than being like a simple chain of connections, it may be a chain of chains, like a rhizome.