

The Tactical Mind in Soccer: The Habit of the Brazilian Squad in the 1970's World Cup

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This work aims at understanding the tactical action of soccer players from the point of view of Peirce's pragmatism. We will focus on the maxim of pragmatism, in which the elements of every concept enter into logical thinking through the doors of perception and leave through the doors of utilitarian actions. In this paper, we investigate the formation of a habit able to manage collective actions on a soccer field. The efficiency of this habit is related to collateral experience shared among soccer players: characteristics of high performance sports training. This unique experience orchestrates perceptions and reasoning, leading to efficient combination of conclusions and influences collective actions. We will analyze the concept that we call avalanche in bow-arrow applied to the 1970's Brazilian soccer team.

Keywords: pragmatism, Peirce, soccer, tactics, Brazil

1. Introduction

This article is the result of doctoral research in communication sciences at the University of São Paulo. In this paper we highlight one of the approaches which support our research on the functioning of a collective mind: Peirce's pragmatism. Within the scope of this approach, we emphasize the importance of three dimensions: feelings, perceptual judgments, and reasoning. We investigate tactical actions in soccer by highlighting the influence of the three aforementioned aspects.

We define as the tactic of the combinations of actions among the players performed during the game with the aim to execute an effective move. The strategy is a general game plan previously prepared with regard to information of the opponent and game conditions, competition, etc. There is a continuity between strategy and tactics, but each one has its specificity: Tactic is in charge of specific actions that make previously designed strategy work. Our focus is to investigate tactical actions from the point of view of Peirce's pragmatism.

Briefly, pragmatism can be understood as the influence that a given concept has on the future conduct at a similar situation. This influence evolves perceptual, rational, intentional, and teleological aspects. About the meaning of this concept, Peirce wrote:

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But [Pragmatism asserts], that the total meaning of the predication of an intellectual concept is contained in an affirmation that, under all conceivable circumstances of a given kind (or under this or that more or less indefinite part of the cases of their fulfillment, should the predication be modal), the subject of the predication would behave in a certain general way—that is, it would be true under given experiential circumstances (or under a more or less definitely stated proportion of them, taken as they would occur, that is in the same order of succession, in experience). (CP 5, 467)

Such influence, which leads to future actions, is characterized as a habitual element of Peirce's cosmology. The habit can be understood as: “[Readiness] to act in a certain way under given circumstances when actuated by a given motive is a habit; and a deliberate or self-controlled habit is precisely a belief” (CP 5, 480). The habit is formed by effective association of ideas that are generalized to perform in the same way on similar occasions. The habit maintains its ability of influence when the belief in its efficacy persists. To investigate the aspects of a tactical concept, we follow the way pointed out by Peirce on one of his maxims of pragmatism: “The elements of every concept enter into logical thought at the gate of perception and make their exit at the gate of purposive action; and whatever cannot show its passports at both those two gates is to be arrested as unauthorized by reason” (CP 5, 212).

In this perspective, we will track the following path: The influence works by the qualitative recognition of the occasion through feelings and extends in selection, filter, and connection among the elements of the object in perceptual judgments. These propositions are summarized in an intelligible premise through an iconic representation (diagram) of the object. Through the manipulation of internal elements of this diagram, it is possible to infer conclusions which are guided by the purpose of the concept. The pragmatism is involved with the influence on teleologically guided intentional practical conduct.

A tactical concept in soccer games can be understood as a generality able to manage collective actions in a specific way aiming at a successful movement in given occasions. It is important to highlight that such influence results in collective actions. Peirce refers to this form of mental influence in some of his writings, namely: “The man is a symbol. Different men in so far as they have common ideas are the same symbol” (Peirce 1998, 209) (Translated by the author); “[...] the man's circle of society (however widely or narrowly this phrase may be understood), is a sort of loosely compacted person, in some respects of higher rank than the person of an individual organism” (CP 5, 421).

[...] the entire thought-life of any person is a sign; and a considerable part of its interpretation will result from marriages with the thought of the other persons. So the thought-life of a social group is a sign; and the entire body of all thought is a sign, supposing all thought to be more or less connected. (MS 1476, 38; Santaella 2005, 279). (Translated by the author)

From these writings of Peirce, we believe that a concept can influence collective actions. Our hypothesis is that intensive training (characteristics of high performance sports) results in collective collateral experiences which allow the formation of a collective habit. We call tactical mind this collective influence derived from intense training. In this kind of mediation, collective conceptions influence feelings, perceptions, reason, and useful action of players involved in move. To understand how the tactical mind works, we will focus on the collectively habits of sensitivity, perceptual judgments, and reasoning.

2. The Tactical Mind in Soccer: Feelings, Perceptions, and Reasoning

As Peirce writes: “The first proper significant effect of a sign is a feeling produced by it” (CP 5, 745). In this perspective, we will highlight the importance of feelings for the functioning of the tactical mind. Peirce defines general feelings as a sensorial habit that mediates sensations of recognition.

Everything in which we take the least interest creates in us its own particular emotion, however slight this may be. This emotion is a sign and a predicate of the thing. Now, when a thing resembling this thing is presented to us, a similar emotion arises; hence, we immediately infer that the latter is like the former. (CP 5, 308)

The general feeling is, therefore, a simple predicate that replaces a complex predicate, in other words, the complexity of the object is replaced by the qualitative similarity, resulting in feeling of recognition. This feeling connects the object recognized with the influence of a habit. About this relation, Peirce wrote: "Habit is that specialization of the law of mind whereby a general idea gains the power of exciting reactions. But in order that the general idea should attain all its functionality, it is necessary, also, that it should become suggestible by sensations" (Peirce 2010, 151).

The tactical feeling is the first dimension of a collective mind. It's a sensorial habit which influences the sensation of recognition among the players sharing the same game context. To make it possible, the players must go through repeated collateral experience, which attracts their sensibilities. In summary, the main function of tactical sentiment is to recognize the occasion on which a given tactical habit could influence the actions of players: The tactical feeling allows the athletes to share the same general idea of the move.

When the general feeling recognizes the similarity on one occasion, the perceptual judgments select and connect aspects of the object, forming a proposition. The perceptive judgments are active: pointing, connecting, driving reactions, and building a specific perception of the object. The perceptual judgment is, therefore, a generality, which influences in reactions and formation of propositions: "Had I, therefore, asserted that a perceptual judgment could be a universal proposition, I should have fallen into rank absurdity. For reaction is existence and the perceptual judgment is the cognitive product of a reaction" (CP 5, 156).

[...] propositions usually have more subjects than one; and almost every proposition, if not quite every one, has one or more other singular subjects, to which some propositions do not relate. These are the special parts of the Universe of all Truth †1 to which the given proposition especially refers. It is a characteristic of perceptual judgments that each of them relates to some singular to which no other proposition relates directly, but, if it relates to it at all, does so by relating to that perceptual judgment. (CP 5, 153)

We call perception tactic the orchestration of individual perceptual judgments on one specific occasion of game recognized by tactical feelings. In this situation, unconscious inferences are developed, pointing to a given space on the soccer field where a specific player should stay. When these reactions are organized in a reciprocal way, perceptual meetings are formed among athletes. These meetings form paths, which influence connections among specific players in given spaces on the soccer field. Here we can see the second dimension of tactical work in its collective dimension.

A given tactical perception is, therefore, formed through a sequence of perceptual encounters, which selects specific parts of the soccer field. These meetings compose trails on soccer field where the reactions of the players are orchestrated. In summary, the tactical feelings and perceptual tactics recognize the occasion in which the concept should act and select important aspects of the object, forming propositions. The conscious inferences are developed from this perceptual process. Thus, the tactical reasoning is the next aspect to be highlighted for the understanding of a tactical mind. About the logic of the functioning of the inference, Peirce wrote:

The object of reasoning is to find out, from the consideration of what we already know, something else which we do not know. Consequently, reasoning is good if it be such as to give a true conclusion from true premises, and not otherwise. Thus, the question of validity is purely one of fact and not of thinking. A being the facts stated in the premises and B being

that concluded, the question is, whether these facts are really so related that if A were B would generally be. If so, the inference is valid; if not, not. (CP 5, 365).

Peirce proposed three types of inference: abduction, deduction, and induction. "Deduction proves that something *must be*; Induction shows that something *actually is* operative; Abduction merely suggests that something *may be*" (CP 5, 171). However, in this work, we do not focus on these types of reasoning; we will highlight what is implicated on the reasoning process: the diagram.

The notion of diagram is important to understand the Peirce's pragmatism, especially when it comes to the understanding of the functioning of the conscious inferences. A diagram is an icon that represents an object through its specific qualities. The diagrammatic reasoning can be simplified as follows: The diagrammatic mind synthesizes the propositions formed by perceptual judgments on a unique premise; it excludes and includes aspects without abstractive impairment, forming an intelligible scheme of the object. The elements of this intelligible scheme are manipulated and lead to intentional conclusion teleologically oriented:

All necessary reasoning without exception is diagrammatic. That is, we construct an icon of our hypothetical state of things and proceed to observe it. This observation leads us to suspect that something is true, which we may or may not be able to formulate with precision, and we proceed to inquire whether it is true or not. For this purpose it is necessary to form a plan of investigation and this is the most difficult part of the whole operation. We not only have to select the features of the diagram which it will be pertinent to pay attention to, but it is also of great importance to return again and again to certain features. Otherwise, although our conclusions may be correct, they will not be the particular conclusions at which we are aiming. But the greatest point of art consists in the introduction of suitable abstractions. By this I mean such a transformation of our diagrams that characters of one diagram may appear in another as things. (CP 5, 162)

An inferential habit can be understood as follows: a specific form of manipulating the diagram should generate good conclusions in given occasions. The tactic inferential habit is a generality that influences collective reasoning; therefore, it is a more complex level of influence than an individual organism. For this habitual work, it is necessary for the development of what we call communicational diagram.

A communicational diagram is formed when different individuals are sharing fragments of the same premise of reasoning. This phenomenon is possible when these individuals are undergoing intense mutual experiences. In this situation, there is a reciprocal affection among the ideas which results in a mutual continuity among the reasoning. This is possible through the affections of ideas.

[...] one law of mind, namely, that ideas tend to spread and to affect certain others which stand to affect certain others which stand to them in a peculiar relation of affectability. In this spreading they lose intensity, and especially the power of affecting others, but gain generality and become welded with other ideas. (Peirce 2010, 136)

In tactical mind, the intense collective training forms shares premises among players due to mutual continuity among their ideas. The third dimension of tactical work is its collective dimension. Through the development of this in common premise, it is possible to collectively manipulate the diagram and combine the conclusions. In other words, when there is a reciprocal acquaintance among the players about their forms of movement in a given occasion, it is possible to associate their actions. When player A believes that, in a specific situation, player B would have moved in a specific manner and player B believes that player A would have moved in such a way, knowing that he (player B) would have moved in a particular form, it is possible to associate the conclusions of the players.

In summary, the tactical habit influences the collective actions by the sensorial synchronization, perceptive orchestration, and the association of reasoning. In this perspective, to define that a team plays in 3-5-2 or 4-4-2,

it is not enough to comprehend the tactical actions. In our perspective, it is important to understand: What kind of situation can generate feelings of conceptual recognition? What paths do the perceptual judgments combined build on the soccer field? How does reasoning interrelate generating combined movements? The present paper analyzes one of the tactical concepts developed by the Brazilian team in the 1970's World Cup.

3. Brazilian Team in the 1970's World Cup: The Habit of Avalanche in Bow-Arrow

The first question to be addressed is: How to identify actions ruled by the habit? The habit can be understood through the actions that it governs. Due to the habit intervention, the actions acquire permanence and hence regularity. This regularity differentiates the actions governed by the habit from the ones ruled by chance.

A tactical habit in soccer can be identified through the regularity of its three dimensions of generality: the feeling of collective recognition in a given occasion; the perceptual encounters that build a trail on the soccer field; and the association of reasoning. The tactical habit that we call avalanche in bow-arrow can be observed in 25% of Brazilian Team's goals scored in the 1970's World Cup.

The first point is, therefore, to identify the influence of sensorial mediation. As we have already mentioned, the tactical feeling generates collective emotions of recognition that trigger the habit. We identify the action of habit in this situation when the Brazilian players recover the ball and the opponents are advanced in relation to their defense field.

The second aspect is the perceptual mediation of tactical habit. This mediation can be identified by regular forms of relations among specific players in given spaces. The sequence of these relations builds a trail that characterizes a given tactical perception. The tactical habit analyzed builds an "S-shaped trail" on the soccer field: At first, the tactical perception selects the right side of the Brazilian defensive field. Carlos Alberto or Clodoaldo should fill this space; in a second moment, the perceptual trail points to the center of the midfield. This position should be occupied by Gérson; the end of the perceptive trail points to the center or to the right side of the Brazilian offensive field where Pelé and Jair should be placed.

Based on the meetings directed by the tactical perception, collective inferences are developed among the players. In this situation, the diagram is collectively manipulated allowing players to associate their conclusions. These conclusions influence the players' actions, originating synchronized movements. The influence of inferential habit, therefore, can be identified through regular shapes of combined shifts.

The tactical rationing developed by Brazil in 1970 has two phases. In the first one, the main elements of the diagram are: the player who retakes the ball, Clodoaldo or Carlos Alberto, and the right side of the defensive field and the center of the midfield (Gerson's usual position). It is a simple combination of reasoning among the players. In this combination, it is related to the position of the player who retakes the ball with the position of the closest companion at the right side who projects a safe ball movement in this direction: Ball transitions are made using short and slow movements until reaching Gerson's domain.

The second moment is the most interesting from the point of view of diagrammatic reasoning. The shared elements of the diagram are: Gerson's ability to launch long balls, the acceleration and ball control at high speed of Pelé and Jair, and the position of the close watch opponent of Pelé and Jair. The manipulation of the diagram should generate a collective conviction. The belief is that the association of Gerson's long ball with the acceleration of Pelé or Jair can overcome the ability of the opponents to recover the ball in a specific space. Then, one of the Brazilian forward players domains the ball ahead of the opponents and scores the goal.

4. Conclusion

This research pursues to understand the tactical action in soccer games under the Peirce's pragmatism point of view. We focus on the maxim of pragmatism in which the elements of every concept enter into logical reasoning through the doors of perception and leave through the doors of utilitarian actions. From these premises, we investigate a kind of mediation yet poorly explored pointed by Peirce: the possibility of a collective habit. Therefore, this work contributes to a better understanding of the mental action at collective levels applied to high performance sports training.

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