

Commentary On Mossio and Taraborelli: is the enactive approach really sensorimotor?

M and T present a defense against criticisms of the ecological approach to perception according to which this approach is confused and not scientifically falsifiable. To do so they distinguish post-Gibson currents from more recent sensorimotor approaches and show that each of these currents constitutes a proper scientific theory.

Their distinction is based on one previously proposed by Hurley (2001) between two kinds of invariants underlying an organism's perceptual abilities. For the ecological approach, perception is based on transformational invariants of the sensory flow related to, but not necessarily directly caused, by the organism's action on the environment. For the sensorimotor approach, the invariants are motor-based invariants directly caused by the organism's movements and actions. The distinction made by M and T is of an epistemological nature because M and T evaluate the status of the ecological and the sensorimotor explanations as scientific theories by studying in detail their empirical testability.

While we agree with M and T's useful proposal we think a further distinction is needed within what they call sensorimotor approaches.

Our distinction relates to theory of mind, and concerns whether the enactive approach should be considered as belonging to the family of sensorimotor approaches. The question arises because proponents of the sensorimotor approach have used the word enactive in a different way from Varela's original use of the term.

To understand the distinction we wish to make, recall that both the ecological approach and the sensorimotor approach are based on the “externalist” idea that perception can only be understood as a form of interaction of the organism with the environment.

Curiously however while stressing the role of the environment, Varela’s original enactive approach has strong idealist underpinnings. In particular Varela’s notion of autopoiesis is supposed to be defined in third person terms, that is in terms of physics and biology (1979: chap.9). But Varela slides into using it to justify a strongly first person perspective in his “neurophenomenological” theory (1996). The external world in Varela’s theory only exists in virtue of phenomenality, and this phenomenality he equates to internal brain activity. Another point about the enactive approach is that, unlike the sensorimotor approach, its aim is not fundamentally to be a theory of perception but a theory of phenomenality, as synonymous with brain activity. This then is a second reason why Varela’s original enactive approach should not be considered externalist in the same sense as current sensorimotor approaches.

Contrary to Varela’s enactive approach sensorimotor approaches are truly externalist in nature. Thus for example Andy Clark and Robert Wilson (2005; 2008) consider that the mind of the organism is constituted by its interaction with the external world via the senses, which play a role similar to tools and artifacts.

In addition to tools and artifacts Susan Hurley very clearly invokes language and social links as external constituents of the mind (2001).

O'Regan and Noë's approach stresses the notion of sensorimotor dependencies which are fundamentally based on the external world and its interaction with the body. Moreover Noë invokes artworks as external constituents of the mind (2004: 175-7, 222-3; Conscious reference 2007draft) in fact coming close to J.J. Gibson's analysis of Lascaux paintings as a form of external collective intelligence contributing to the constitution of perception (1966: 228-9, 234-8; 1979: 270-3, 267-91).

In summary, the use of the word enactive by many sensorimotor theorists leads to a confusion. Varela's original "enactive" view has an idealist streak and so should not be classified with the strongly externalist sensorimotor views such as Naomi and Clark (2002), Wilson (2005), Wilson and Clark (2008), Hurley (2001), Noë (2004; 2006) and O'Regan and Noë (2001).

A marginal but interesting remark can be made about the benefits of the distinction that M and T make between the transformational invariants of the ecological approach and the motor invariants of the sensorimotor approach. This distinction makes it clear that the sensorimotor approach is able to account for perceptual errors whereas the ecological approach is not. Under the sensorimotor approach the same sensory input can be interpreted erroneously because of inappropriate accompanying action with respect to the environment. In the ecological approach (Gibson, 1979: 135; Järvilehto: 1998), no specific action is involved so each sensory input would necessarily correspond to a single interpretation.

Another remark is the following. From Gibson's official heritage to Varela's strongly idealist enactive position we find again almost the whole range of positions between ontological realism (Gibson's ecological inheritance) and idealism (Varela's enactive approach). The sensorimotor approach proposes a form of realism which is innovative (Smith, 2003) because instead of taking the outside world as the object of perceptual dynamics, it takes reality to be actively constituted by the individual's exploration of the modes of interaction of its body and environment (which itself can be partially engineered through a social construction process).

In conclusion, M and T's purpose was to revitalize the different families of ecological approaches as proper scientific theories by distinguishing the Gibsonian and sensorimotor sub-currents with their different notions of active perception, and then showing how each approach has its scientific merits. We suggest that their analysis is correct if the original enactive approaches such as Varela (1996), Varela and Thompson (1991; 2001), Maturana (2002) are excluded: such neurophenomenological approaches have no scientifically verifiable link with the external world and should not be classified with sensorimotor approaches.

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