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## Between Perception and Action

By BENCE NANAY

Oxford University Press, 2013. 224 pp. £30.00 (hbk)

What mental states or processes mediate between perception and action? Bence Nanay's lucid and provocative monograph argues that the most important mediating states are *pragmatic representations* (PRs) – perceptual states representing the properties required to successfully act upon an object. After introducing PRs (ch.1), Nanay argues that they are genuine perceptual states and necessary antecedents of most actions (ch.2), discusses the kinds of properties that can be attributed by PRs and the objects to which our perceptual systems attribute them (ch.3), and argues that construing PRs as necessary antecedents of action both affords a way of naturalizing action theory and dethrones propositional attitude psychology as the default mode of explaining intentional actions (ch.4). Chapter 5 considers the attribution of action-relevant properties via mental imagery rather than perception, using the ensuing category of *pragmatic mental imagery* to ground new explanations of pretense actions and some of the semi-automatic, imperfectly rational, activities often understood via appeal to 'aliefs' (Gendler 2008). Chapter 6 introduces the notion of *vicarious perception* – the perceptual attribution of properties pertaining to the possible actions of another agent – and argues convincingly that a wide range of empirical and theoretical questions about infant and animal understanding of the mental states of others can be productively recast in light of this notion. Taken as a whole, the chapters are intended to provide a new theoretical framework for investigating how sophisticated cognitive abilities such as action-planning, imagination, deliberation and interpersonal understanding could be rooted in sensorimotor capacities that we share with infants and animals. As this summary suggests, Nanay's short book packs in much for philosophers of mind and action to engage with, and each chapter opens many avenues for further exploration and debate. I restrict myself here to raising, in constructive spirit, some questions about his central claim – that PRs are *perceptual* states that *represent* the properties of objects required for particular actions, and are *necessary* antecedents of most actions.

Why think that PRs are perceptual states? A natural thought (22) is that actions require perceptual states as their antecedents so that they can be guided by the worldly circumstances to which they are responses. But this leaves open the possibility that perception here serves as input to non-perceptual states that guide action – perhaps motor planning, or representations of target kinesthetic or sensory states. Here Nanay appeals to a fact about perceptual learning: when wearing goggles that distort the way the world appears (e.g. by shifting the visual field leftward), perceivers quickly regain the ability to throw a ball through a hoop while their perceptual experience remains distorted. Nanay suggests (25) that this is only explicable by attributing an unconscious perceptual state to the subject that accurately represents the hoop's location. Granting this, Nanay argues, undercuts support for the view that the true antecedent state of this action is non-perceptual, since holding this would require attributing a *further* non-conscious state to the subject – one to which the unconscious perceptual state serves as input. Plausibly, we should not attribute non-conscious representational states to subjects without good reason; Nanay's proposal (reasonably) attributes only one, whereas the rival interpretation attributes two. One response here is to wonder whether such questions can really be settled from the armchair – shouldn't this dispute be adjudicated with respect to our current best psychological theories of perceptual learning and motor control? Perhaps more importantly, we might question whether the regained ability is only explicable via appeal to an updated perceptual representation of the hoop's location. Why not hold that the perceptual state remains unchanged, while the relationship between it and the states and processes involved in motor planning and execution adapts? Of course, such a proposal must explain exactly how that relationship is changed through perceptual learning (and why that relationship is distorted in the cases of various action-resistant optical illusions, such as the two-dimensional Ebbinghaus illusion (26)). But Nanay's proposal faces the parallel challenge of explaining exactly how the non-conscious perceptual state that guides adapted action is updated through perceptual learning (and why

there is a mismatch between conscious and non-conscious perceptual representations in cases of action-resistant illusion).

Secondly, must we think of the states or processes that mediate between perception and action as *representational*? Here Nanay diplomatically suggests that readers tempted by an anti-representationalist framework for understanding the mind might recast most of the book's claims in relational terms. Where Nanay speaks of the properties objects must be represented as having in order to perform particular actions, anti-representationalists may think instead of the properties to which perceivers must be related in order to perform those actions. Nanay is right to suspect that some of his readership – philosophers interested in de-intellectualizing the mind via appeal to sensorimotor relationships – will harbour anti-representationalist sympathies, but the extent to which his framework could be recast in relational terms is unclear. Take, for instance, the last part of his central claim – that PRs are *necessary* antecedents of most actions. Nanay's chief reason for this claim seems to be one we met above – that 'without such representations we would not be able to explain our fine-grained movements (for example in the three-dimensional Ebbinghaus illusion or in the basketball example)' (69). However, it is not clear why *representing* action-relevant properties is necessary here. What seems trivially true is that we must be *appropriately related* to the relevant properties of the object in order to act upon it. But the question of whether this relation must be representational apparently remains open. Here, then, is one place where the possibility of a relational view threatens to undermine part of Nanay's central claim. The contention that PRs are necessary antecedents of most actions also appears threatened by the limits Nanay candidly places on its scope. Throughout, Nanay is admirably careful about qualifying his central claims, and acknowledging cases or consequences about which he is unsure. He clarifies (28-31) that PRs are not required for mental actions, simple yet non-reflex actions such as blinking or swallowing, or complex actions composed of simpler actions. He is committed only to the claim that PRs are necessary antecedents of actions whose immediate mental antecedent has a representational component, and suggests that the foregoing action types fail this criterion. On Nanay's view, 'The immediate mental antecedents of action are what make actions genuine actions' (3). The framework Nanay presents thus appears to rule out the desirable possibility of a unified theory of why blinking, thinking and (visually-guided) drinking all qualify as actions.

While the above remarks have been mildly critical, *Between Perception and Action* has much to recommend it. It engages a wide range of contemporary philosophical and empirical literature and offers an original and fertile perspective from which to understand much of our mental lives. In particular, the final chapters applying Nanay's framework to mental imagery and social cognition break important new ground, and constitute one of the most sophisticated discussions to date of how higher cognitive abilities might be grounded in sensorimotor capacities. The book is an important contribution to philosophical research on the relationship between perception, agency and cognition, and deserves the attention of any theorist working on these issues.

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