

the monist rendering of panpsychism. We are encouraged not to postulate more entities than are required, but I argue that the entities are required here. As noted above, the notion of single stuff whose aspects are connected by brute metaphysical necessity would fail to account for the conceivability of modal variation between these two domains. To account for this, we need to posit that the two distinct domains are only contingently related. Hence, the most parsimonious theory that adequately accommodates the conceivability argument's outcome is provided by dualism. On a more general note, though, the preference for theoretical parsimony relies on the assumption that the world is parsimonious. If, however, the world actually turns out not to be parsimonious, then theoretical parsimony would fail to be truth conducive.

This leads to the second critical point, which is the question of why we should suppose that our world is the panpsychist's world. By conceding that the relation between phenomenality and physicality is contingent, we open up various modal possibilities for precisely how these domains might be correlated. We can no longer assume that physicality and phenomenality are ubiquitously tied together by necessity. Rather, in virtue of these countless modal possibilities, we can take it as true that there exist infinite consciousnesses across a plurality of metaphysically possible worlds, but the ways in which consciousnesses are distributed in particular worlds are contingent on the characteristics of the psychophysical laws that obtain in those worlds. In his discussion of the conceivability argument, for example, Goff entertains a "ghost" world where phenomenality obtains without any associated physicality and a "zombie" world where physicality obtains without any associated phenomenality. Given our own experiences as subjects embodied in biological systems, we at least know that our world is a world where phenomenal properties accompany certain macrophysical processes. However, it is less clear why we should think that all of our world's physical processes are accompanied by phenomenal properties. Of course, there may indeed be a metaphysically possible world where all physical events, microphysical and macrophysical, are associated with corresponding phenomenal events. However, there seems to be little reason to suppose that our world is such a world.

Although we might disagree with the overall metaphysical picture it paints, *Consciousness and Fundamental Reality* is an excellent book. Goff has done a commendable task of challenging the orthodox view with confidence, clarity, and rigour. The first part of the book is altogether more persuasive than the second part. In particular, his revelation argument in

the first part is a valuable addition to collecting arguments against physicalism in the philosophical literature. The strongest moments in the second part are his expert analyses of the combination problem and the subject irreducibility thesis. Ultimately, though, I think that his monist rendering of panpsychism is unsound. If we are convinced that physicalism is false and needs to endorse a different position, we will do better by committing to the more standard form of naturalistic dualism. Nonetheless, it is a benefit of this fine book that it encourages us to take seriously the idea that consciousness has a fundamental place in our ontology.

**Hane Htut Maung**

**Massimiliano Lorenzo  
Cappuccio (ed.)**

**Handbook of Embodied  
Cognition and Sport  
Psychology**

The MIT Press,  
Cambridge (MA) 2019

As the very first of its kind, the *Handbook of Embodied Cognition and Sport Psychology* brings a unique perspective and multidisciplinary approach to consideration and research of sport, especially given how this release finally bridged analogous fields of Embodied Cognition (EC) and Sport Psychology (SP) together and integrated them in a joint effort of scientific investigation and critical reflection of sport. Within impressive 770 pages, this volume contains an introduction and seven large sections with 26 insightful chapters written by 69 prominent authors, briefly presented in the closing section of the book.

As the "intrinsically interdisciplinary" science that studies human intelligent systems and mental functions, while researching the potential, limits, and usage of the mind in the complex and sometimes extreme circumstances of sport, Cognitive Science relies heavily on sport psychology and opens up to different collaborations. Thus, most of the 26 chapters are based on the interdisciplinary collaboration between scholars from different disciplines, such as psychology and neuropsychology.

logy, psychiatry, anthropology, kinesiology, movement and exercise science, (physical) education, pedagogy, sociology, ecology and environment, neuroscience, cognitive science, and of course ethics and philosophy (philosophy of mind, philosophy of science, philosophy of psychology, phenomenology, epistemology, philosophy and ethics of sport).

“The contributors of this volume explore a range of mental mechanisms that make sporting achievements possible, drawing in the variety of ways on an existing tradition of work on embodied cognition.” (Papineau, xiii)

The volume begins with an insightful introduction of the editor M. L. Cappuccio, and a very short introduction by R. S. W. Masters and D. Papineau. In the introduction, Cappuccio brings an analytical/historical, plausible and precise presentation of the (Embodied) Cognitive Science and Sport Psychology, their definitions and determinations, and the crucial steps of development and connections. For such a volume and its readers, especially regarding the possibly large audience of readers interested in (understanding of) sport, it is needful and even necessary.

The first section, “Concepts and Applications of the Embodied Approach to Sport Science: Foundational and Methodological Notions Embodied Cognition and Sport”, deals with the key notions and concepts: the meaning of embodied cognition and why it is relevant for the psychology of sport (L. Shapiro & S. Spaulding); enactive/embodied theory of emotions as a crucial constituent of cognition and the need of training them (D. D. Hutto, M. Kirchhoff & I. Renshaw); ecological approach to motor behaviour (P. Silva, A. Kiefer, M. A. Riley & A. Chemero); and a context- and behaviour-centred approach to sports performance (G. Jordet & G.-J. Pepping).

The second section, “Theories of Skill and Skill Disruption: Awareness, Automaticity, and Control”, focuses on embodied skills, their nature and cognitive preconditions, but also on the different features that derange them: an explanation of choking under pressure based on the self-consciousness and self-awareness (M. L. Cappuccio, R. Gray, D. Hill, C. Mesagno & T. Carr); introduction of *Mesh* – an anti-dualistic theory of cognitive control and skilful performance (W. Christensen, J. Sutton & D. McIlwain); critique of the distinction between unreflective action and cognitive control (B. G. Montero, J. Toner & A. P. Moran); and consideration of the reflective and deliberative dimension of performing experience, as well as the active role of the athlete as an aware (motor-)intentional agent (J. E. Birch, V. F. Moe & G. Breivik).

The third section, “Learning by Moving: Skill Development through Physical Education and Sport Pedagogy”, explores different theories of learning and (mental) skills development of the sportsmen which perform in the high pressure environment: relation between concept(s) of embodied cognition (extended or distributed and enactive cognition), notion(s) of embodiment (“body image” and “body schema”) and sport pedagogy in order to integrate the first in to the latter (D. Francesconi & S. Gallagher); discussion of “cognitive enhancements” or cognitive training regimes based on physical activity (D. Moreau & P. D. Tomporowski); development of the integrative model within the multidimensional framework for talent identification that merge genetic and environmentalist research in an specific embodied perspective (M. Farina & A. Cei); and consideration of processes and technologies of embodiment of virtual and augmented reality for enhanced sport-performance by controlling brain rhythms in four aspects: mental rotation, mental load, motor control and erring (M. Reiner).

The fourth section, “The Intersubjective Dimension of Skill: Mutual Understanding, Coordination, and Empathy in Team Sports”, emphasises human interaction in terms of sport skills: embodied cognition simulation theory viewed by the dynamic approach as an evolving process expended over different interactive levels of the system: mind, body, and environment (A. M. Abreu, P. T. Esteves & S. M. Aglioti); extended conceptual model to explain action-driven and prediction-driven contagions as a way for athletes to explain, prevent and compensate for these contagions during the performance (T. Ikegami, H. Nakamoto, G. Ganesh); and “joint action” and “collective intentionality” with the focus on communication and social factors which influence team “cohesion” in sport (L. J. Colling).

The fifth section, “Enculturated, Gendered, and Disciplined Bodies: Approaches to Performance and Motivation in the Social Sciences”, discusses the best research methods in the social sciences to develop the sociological, anthropological and cultural side of sports practices: requirement of new explanations and enactive understandings of high performance in the dangerous context of outdoor risk sports and Japanese swordsmanship (J. Ilunduin-Agurruza, K. Krein & K. Erickson); awareness of the phenomenon of the stereotype threat for the female athletes as a shared and collective experiences that serve to shape the psychological framework in a given sport (M. Merritt, A. Yap, C. Comely & C. Diehl); and demonstration of the ethnomethodological re-specifications of embodied cognition

in sport (R. Sánchez-García, G. Fele & K. Liberman).

The sixth section, “Affordances and Action Selection”, deepens the theoretical background of the notions of “affordance” and “action choice” in several directions: the irreducible embeddedness of action choice in sport as an emergent feature of coordination in sport system (D. Araújo, K. Davids & P. McGivern); how ecological dynamics views intentions, perceptions, and actions as intertwined processes that can be harnessed to utilise affordances in specific sport performance environments (D. Araújo, M. Dicks & K. Davids); affordances and the perception of affordances within the ecological and embodied meaning in the context of throwing for long distances and accuracy (A. D. Wilson, Q. Zhu & G. P. Bingham); and the relation between affordances and the anticipatory control of action (W. Christensen & K. Bicknell).

The seventh section, “Predictive and Anticipatory Skills: Imagination, Improvisation, and Creativity in Sport”, considers the sources of the predictive capabilities of the mind in sport: “mental” and “motor” imagery, expertise, and action (T. E. MacIntyre, C. R. Madan, N. E. Brick, J. Beckmann & A. P. Moran); fast saccadic eye movement as the predictive processing in the control of interceptive motor actions (D. L. Mann); embodied and enactive creativity in sports (Z. Rucinska & K. Aggerholm); and prefiguration, anticipation, and improvisation (M. Maldonato, A. Oliverio & A. Esposito).

The book is a successful presentation of how sports offer a unique view into the human mind in “action” – its limits and potential. Sports competitions and challenges bring the human mind in the domain of different extreme conditions, such as in the enormous amount of stress, keeping self on the edge of sporting perfection and/or complete exhaustion combined with the need for immediate decision-making and keeping self-control. This volume is proof that sports in various ways help in a better understanding of the human mind and its processes.

Furthermore, this volume is an obvious demonstration of the fact that sports – in the performance at the competition as well as the preparation for it – is highly or primarily physical endeavour, but at the same time significantly – mental. To use a quote that opens the book, “although sport is played with the body, it is won in the mind” (i).

Furthermore, if we can speak from the philosophical view here, given that I am the sport-philosopher, this book is not just providing valuable insights and understanding of the sports phenomena but also a practical

and helpful companion for sporting success. In other words, the value of the book is not just epistemological and cognitive but also practical and applied. It will help a reader to understand sport and sports practice, as well as oneself, but it will also provide insights on how the human body and mind function and how can it be trained to achieve the best possible performance.

At this point, however, we can critically comment on an obvious and dominant accent in the book on the “zero-sum” character of the sport, as well as considerations of how EC and SP can benefit (almost only) highly competitive and professional sports. We can only suggest their editors to include “amateur” and “non-professional” sports into the second edition and give them serious attention and consideration, including insights related to how EC and SP can benefit them. Also, a brief thought for the next edition, and despite the very welcoming and important introduction by the editor, it seems that including a small glossary of the most important terms and notions would be helpful and welcomed by the non-experts and “new-to-the-field” readers.

However, the editor should be praised for the stunning and remarkable work that he has done on several levels. On the level of quantity, for the number of authors gathered and the broad range of topics covered. On the level of quality, for bringing together the most prominent group of scholars from the different yet connected fields which provided the highest quality content. On the scientific endowment level, for innovative and pioneering contributions, fascinating insights and undertaken steps to the new direction in the research of sport and the human mind. On the level of education, but also for university teaching, for shedding light on what is crucial while teaching in the specific area and providing an ultimate (literature) source on which topics and/or content, authors, approaches, and methodology to use. On the level of sports sciences, for bringing numerous insights and help in the understanding (relation and function) of the human body and mind in sport – from preparation and training to actual sporting practice.

Finally, we can state that the book’s main purpose is accomplished – acquiring integration of sport psychology and embodied cognition in a unique multidisciplinary view on/of the sport. This book most clearly brings awareness that the “territories” of sport psychology and embodied cognition are not separated but intertwined and inseparable. Moreover, on the one hand, the book clearly shows how two analogous fields *can* and *need to* use each other’s lenses to provide help and benefit for both in many different ways, while on the other hand, how both fields can be applied

to the sporting realm jointly – to maximise sports performing abilities and sporting skills of athletes that are striving for excellence and success.

*Summa summarum*, this *Handbook* is a “foundation stone” for the research of sport, which puts the integrated field of embodied cognition and sports psychology on the map of sports sciences as a specific and important territory.

**Matija Mato Škerbić**