

Preface

Evolutionary Psychology (EP) is currently one of the most fascinating fields of interdisciplinary research on the human mind, brain, and behaviour. According to EP, the brain is an organ whose computational capacities have been selected for because they provided advantages of survival in the course of evolution. Cognitive abilities are seen as the results of specific reactions to evolutionary pressures, which have shaped our ancestors: ‘Natural selection shapes domain-specific mechanisms so that their structure meshes with the evolutionarily stable features of their particular problem domains. Understanding the evolutionarily stable feature of problem domains—and what selection favoured as a solution under ancestral conditions—illuminates the design of cognitive specialisations’ (Cosmides and Tooby 1994). In this volume, some of the epistemological premises and problems of this scientific paradigm shall be addressed to critically assess the status of EP in contemporary discussions in the philosophy of mind and cognitive science.

Some of the fundamental ideas of EP had been discussed already at the beginning of the twentieth century. For a few decades, though, they were suppressed by the upsurge of three more prominent paradigms: (1) behaviourism and its focus on ontogeny as opposed to phylogeny; (2) philosophical and common sense convictions that the individual is essentially free and can overcome biological determinations; (3) cultural relativism and its assumption that culture is the main factor that shapes social groups and the minds of their members. Since the 1970/1980s, however, the ideas of EP, coupled with the success of sociobiology (Wilson 1975), have become increasingly more important as a *theoretical* bridge between the natural, behavioural, social, and cognitive sciences investigating human nature as well as a rich domain of *empirical* research (cf. the journal *Evolutionary Psychology*, established in 2003).

In light of this development, at least three bundles of theoretical issues concerning the rationality and validity of EP arguments can be addressed: (1) the relationship between the biological foundations of cognitive processes and mental states; (2) the relationship between organism, brain, and brain modules; (3) the relationship between the things EP tries to explain and the way it does explain them.

It is sometimes supposed that EP contains a type of *naturalistic fallacy* (Moore 1903), that is the misconception that higher-order principles (such as ethical prin-

ciples) could be derived from what happens in the natural world. More generally, it is supposed that EP is characterised by a strong reductionism, namely the attempt to reduce mental phenomena to neuronal phenomena and from there ultimately to genetic phenomena. In the philosophy of mind, the problems of reductionist programmes are widely discussed. Apart from the suggested possibility of *multiple realisations* (Fodor 1974) and the pluralism of descriptive levels (Dupré 1993), there might be the ‘phenomenological’ problem that EP needs to identify cognitive processes by applying folk-psychological or introspective notions of mental phenomena, which are then subjected to an evolutionary explanation. In other words, the formation of EP’s explananda is not accomplished in terms of ‘hard science’ alone—it must be known before the scientific analysis what we mean by concepts such as ‘will’, ‘action’, ‘deliberation’, ‘desire’, ‘emotion’, etc. How can philosophy help here with detailed descriptions of the structures of consciousness and experience and the conceptual analysis of folk-psychological vocabularies?

Another line of criticism stems from the arguments developed by Bennett and Hacker (2003), who outline a critical framework for the evaluation of recent approaches in neuroscience. They remind us that for some brain scientists and neurophilosophers, the brain does all kinds of things: it believes (Crick), knows (Blakemore), interprets (Edelman), questions itself (Young), contains symbols (Gregory), represents information (Marr), and makes decisions (Damasio). Behind these assertions lies, in Bennett and Hacker’s view, a *mereological fallacy*, because the conception of the ‘brain’ is unduly inflated by ascribing activities and powers to it that are usually applied to organisms as wholes. Even if one admits that there is empirical evidence for the correlation of complex subjective *wholes* such as decision-making and specific physical *parts* of those processes such as neuronal firings, the identification of a part with a whole would be an invalid inference.

The concerns Bennett and Hacker raise with regard to neuroscience seem relevant with regard to EP as well, where it is often claimed that particular brain modules fulfil complex functions that are usually attributed to subjects. In other words, if it does not make sense to say that the brain (part of the organism) does all these complex things, then it makes even less sense to say that a module (part of the brain) does them. The mereological fallacy would be transposed to a more fine-grained level and, as some would argue, such a shift does not solve the problem, but makes it even more serious. What would thus be needed is a *mereological analysis* that helps to ground an *organismic ontology*.

Another problem of EP could be seen in the temporal structure of the development of psychological faculties and features and its translation into a scientifically adequate mediation. The *narrative fallacy* (Taleb 2007), which can be attributed to various scientific models of explanation, amounts to the retrospective construction of a story to make a particular occurrence appear plausible. In the case of EP theorising, some think that this fallacy consists in using current cognitive and behavioural phenomena (P_c) to explain past phenomena (P_p), which are *then* believed to be the necessary conditions for the existence of P_c . The idea that seemingly legitimises this line of reasoning is that every P_c , for example a behavioural disposition of an individual of a certain species, has only survived until the present because its correlating P_p was beneficial for the survival of the species in question.

By assuming that the behaviour of modern humans can only be explained in terms of adaptations that occurred in a Stone Age environment, EP presupposes that human evolution has not produced drastic changes ever since, at least when it comes to such factors as brain size and structure. This heuristic presupposition is called, in paleodemographics, the *principle of uniformity* (Grupe et al. 2005). From a philosophical point of view, this assumption raises the question of how we can achieve epistemic access to the ‘lifeworld’ of our ancestors. Two methodical possibilities of EP to deal with this are (1) the analysis of *relics* and (2) the *back projection* from present hunter-gatherer societies to prehistoric times. But do these suffice to reconstruct the lifeworld of individuals at the time when crucial adaptations are believed to have taken place? First, the inference from a fragmented physical reality to a complex psychological reality seems to leave many parameters undefined; and second, modern day hunter-gatherers do not exist in isolation from processes of globalisation and social change, so that they cannot be regarded as models of an archaic human condition. These theoretical and practical questions of how the explananda as well as the explanations of EP are constructed, and many more issues, are discussed in this volume to elucidate the ways we think about human evolution on the one hand, and the argumentative structure of EP explanations and narratives on the other.

The recent literature is characterised by fierce attacks of philosophers against the programme of EP (e.g. Buller 2006; Lewontin 2007; Richardson 2007), and equally emphatic defences or counter-attacks by proponents of EP (e.g. Pinker 2009; Buss 2011; Hoch-Olesen et al. 2011). Some fear that EP ‘might constitute a genuine threat to the contemporary moral order’ (Hagan 2005), while others celebrate its Darwinistic strategy as the key to our understanding of ourselves: ‘Natural selection has a special place in science because it *alone* explains what makes life special’ (Pinker 1997).

This volume brings together the expertise of philosophers and psychologists to explore the interdisciplinary ground for fruitful discussions in the middle sphere between such extreme positions by investigating the epistemological dimensions of EP. The point of departure for the collaborative work on this volume was the conference ‘Epistemological Foundations of Evolutionary Psychology’, which took place at the University of Heidelberg’s *Internationales Wissenschaftsforum* (IWH) from March 16–17, 2012. From there, the project has developed for quite a while, as new authors joined in and as the outlook was specified. I am grateful for all the discussions we have had at the conference and beyond and thank all authors for their fascinating contributions.

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