

Evolutionary psychology, design reification, and the denial of personhood: A reply to Klasios

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Abstract

Klasios, who asserts that my recent critique of evolutionary psychology contains egregious misunderstandings and a straw-man presentation of its theoretical assumptions, claims to outline the real position of evolutionary psychology while proffering a more accurate treatment of the neurobiological issues involved. On the contrary, I attempt to show that Klasios frequently misstates my position and that his arguments repeatedly prove my own. His evidentiary neurobiological examples meant to criticize my position are nearly identical to those provided by myself in pointing toward an alternative to evolutionary psychology—which suggests an unwillingness to seriously conceptualize a non-“blank-slate” null hypothesis. Klasios’ call to avoid the term “innate” and accept a revised terminology of modularity is also criticized, while his reductionist appeal to thermodynamics is argued to reveal what is most at stake in the debate between evolutionary psychologists and its critics: whether the future of psychology will leave adequate room for personhood in its conceptualization of the human mind.

Keywords

criticisms, evolutionary psychology, mind, neurobiology

Klasios (2014) accuses me of misrepresenting the theoretical commitments of evolutionary psychologists in my recent critique of their conceptual paradigm (Peters, 2013). I will suggest below that Klasios’ grievances are more terminological than conceptual, and as such, take little away from my main arguments. I will also show that Klasios frequently

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misstates my position, and that the neurobiological arguments that he provides only prove the points I was trying to make.

Innate modularity

Klasios believes that I have grossly mischaracterized how evolutionary psychologists define modularity and innateness. He states, for example, that

it is emphatically *not* the case that evolutionary psychologists posit the existence of an overarching cognitive architecture comprised of “genetically pre-specified” cognitive modules that are necessarily fully developed at birth or early childhood, or insensitive to experience across the board or even in general. (2014, p. 126)

He ostensibly claims to contradict my position by quoting Marcus (2004): “Built-in doesn’t mean unmalleable; it means organized in advance of experience” (p. 40). However, my depiction of evolutionary psychology seems to me consistent with this quote. And to be clear, I did not say that cognitive modules are always completely formed at birth, nor did I say they were necessarily insensitive to environmental experience. Rather, I said that “This view assumes that modules are largely pre-determined or pre-specified in our genes—a qualification accepting that the environment may also play a role in their activation” (Peters, 2013, p. 307). Klasios indeed quotes from this sentence, but presumably leaves out the second part to better fit the mischaracterization he wants to accuse me of.

Klasios also takes issue with my use of the word “innate.” He complains that evolutionary psychologists eschew the concept, and suggests that we should use their recent terminological preferences (e.g., “design reincarnation”). Klasios points us to Barrett’s 2006 paper, where the concept of innateness is briefly discussed. Barrett in turn references a paper by Samuels (2002), who argues that when we say that a structure is innate, we should mean that it was not acquired by a psychological process. Without clarifying what he might mean by “psychological,” Barrett deems the definition acceptable, and indeed uses it to then argue that the evolutionary psychologists’ conceptualization of a module does not meet this requirement for innateness, since modules might necessitate influence from a psychological environment for their development. Evolutionary psychologists must claim that *something* is innately pre-specified, though some want to argue, at least in certain cases, that this genetically endowed mechanism is not yet a fully formed module, as it still requires ontogenetic exposure from a corresponding environmental stimulus that together create the end phenotype, developmental target, or fully formed module surmised to fulfill some evolutionarily adaptive function (Barrett, 2012). Although selection necessarily operates on the genetically determined component, a module thus conceived is the product of both genes and environment.

However even in situations where a module is imagined to comprise a composite and hierarchically layered neurobiological scaffolding, effectively built atop some co-opted genetically dictated mechanism, we must not lose sight of it within the shifting terminology, since it is this genetic component that is presumably selected—it alone gives evolutionary psychologists the toe-hold that links their theoretical module to an actual

evolutionary mechanism that would permit them to explain human psychology in adaptive terms. Also note that within this hierarchically conceptualized module involving a hybrid of genetic mechanism and environmental shaping, the gene-based component must not only involve an innately driven process, but it likely operates closer to the way that modules were originally conceived (e.g., domain-specific, mandatory operation; Fodor, 1983), since it must be able to guarantee, with the right environmental input, the “reincarnated” design or functional target postulated by evolutionary psychologists. At any rate, the term *innate* is in my view both appropriate and important, insofar as the formation of these modules (however we construe them) presumably depend on a genetically dictated mechanism which we must somehow describe, and that it works in conjunction with what must be an almost ubiquitous environmental stimuli, given that the functionally adaptive phenotype is salient enough to be regarded by evolutionary psychologists as culturally universal.

Neurobiological evidence

In my paper I briefly outlined problems with the kinds of neurobiological evidence evolutionary psychologists draw from to support modular claims. I specifically criticized attempts to find support for their assertions by appealing to evidence from subcortical and primary cortical areas, since these veridical systems tend to be involved in very basic motivational contingencies. While it is indeed true that such mechanisms almost always find themselves co-opted into higher-order psychobiological processes (e.g., an erotic foot-fetish must necessarily involve low-level mechanisms regulating sexual arousal), I argued that they ought to be differentiated from the later evolving neuropsychological systems likely involved in supporting the kinds of higher-level socio-cognitive strategies that evolutionary psychologists typically want to explain. As such, neurobiological evidence demonstrating canalization and pre-specification within subcortical structures, or cortical structures involving uncontroversial sensory-perceptual or motor systems, should not be used to support the hypothesized existence of highly resolved innate biological processes functionally adapted to identify cheaters, detect women with blonde hair, or engage in moral behavior.

I thus find it curious that Klasios (2014) would then try to defend the neurobiological evidentiary basis of evolutionary psychology by providing examples from primary cortices (e.g., somatosensory and somatomotor), before declaring that they exhibit traits that are “*not* explicable in terms of neural pruning” (p. 128). Note again, that I did not suggest otherwise and have acknowledged such evidence in my original paper.¹ But more importantly, Klasios is doing precisely what I was criticizing, since he wants to use uncontroversial examples of modularity in low-level or primary cortex organization, and apply it by analogy to explain higher-level functions that likely engage secondary and associational cortex thought to be involved in more complex human psychology. He then goes on to find neurobiological alibis through comparisons with mice, ferrets, monkeys, and cats, before concluding that: “there is thus evidence that specific genes are implicated in the development of cortical structures, even independent of experience” (p. 128). However, it should suffice to say that this is an uncontested point—I did not argue otherwise.

Finally, Klasios states that “since the developmental pathways undergirding the cortex are phylogenetically conserved, there is seemingly no reason to suspect that all highly resolved areas of human cortex are simply experientially shaped without a significant amount of genetically guided structure” (p. 128). Careful readers will note that I made no such argument. And though I agree with his conclusion, his main premise here is false. The human neocortex differs from that of non-human primates in a variety of ways, including but not limited to a disproportionate enlargement of prefrontal and temporal associational areas (Rilling, 2006). And while it is true that some neurodevelopmental pathways at the cellular level are phylogenetically conserved, such as the topographical organization of specialized cells in the primary visual cortex canalized to respond preferentially to visual line orientations (Paik & Ringach, 2011), such strong conservation is not true of all, perhaps not even the majority of human neocortex, which involves an abundance of tertiary and association areas. I am thus inclined to agree with Jaak and Jules Panksepp (2000), who noted that “any ascription of intrinsic modularity to human associational cortex must presently be deemed intuition-trading rather than evidence-based argumentation” (p. 115). Moving away from the primary areas, neuronal structure is increasingly plastic and less formally defined. A well-known and rather dramatic example of this malleability is exemplified by the annexation of adjacent multimodal association areas for functional use when there is damage to a bordering primary cortical area (Renier, De Volder, & Rauschecker, in press). Other examples were offered in my original paper.

The straw-man null hypothesis

It is worth asking why proponents of evolutionary psychology would think that neurobiological arguments, such as the ones that I gave myself, must necessarily support evolutionary psychology. Part of the answer may have to do with the fact that evolutionary psychologists fail to seriously entertain an alternative that is not a “blank-slate” model of the mind. For Tooby and Cosmides (1992), the alternative is what they dub the Standard Social Science Model (SSSM), defined as a blank-slate, social constructionist, or cultural determinist perspective, where the mind is regarded as shaped almost entirely by culture.² David Buss (2005) likewise claims that “The human mind can no longer be conceived as it has been in mainstream psychology, implicitly or explicitly, as a blank slate onto which parents, teachers, and culture impose their scripts; a domain-general learning device” (p. xxiv). Klasios (2014) in turn, says that “one would be at a loss in attempting to explain such systematically predictable patterns occurring at the surface-level in merely domain-general/blank slate terms” (p. 126). With such a straw-man null hypothesis, we should be highly suspicious when proponents claim, as Klasios does, that evolutionary psychologists can empirically rule out non-adaptationist hypotheses. To be clear: if non-adaptationist translates into “blank-slate,” then we indeed have a false dichotomy that should cast serious doubt on the positive findings reported by evolutionary psychologists.

Klasios implies that my examples from the neurodevelopmental literature were meant to defend a blank-slate philosophy of mind. Rather, it was to illustrate the conceptual and methodological difficulties that will necessarily arise for a research paradigm trying to

separate phylogeny from ontogeny without directly studying genetics or neurobiology, and for a social science that tests its gene-based hypotheses without adequate specification of a plausible null hypothesis—not a blank-slate mind, but one consisting of a limited number of neurobiologically verified lower-level structures interacting with later-evolving systems that are comparatively more flexible and responsive to input and influence from modern physical and sociocultural environments. Klasios suggests that this view is consistent with evolutionary psychology. But note that it is also consistent with a number of alternative models, including that outlined by Panksepp in *The Archeology of Mind: Neuroevolutionary Origins of Human Emotion* (Panksepp & Biven, 2012), and as we recall, Panksepp has been highly critical of evolutionary psychology (Panksepp, Moskal, Panksepp, & Kroes, 2007; Panksepp & Panksepp, 2000). Panksepp's theoretical model, one developed after decades of neurobiological research detailing actual physical systems, is a clear example of a model that is neither a blank-slate philosophy nor theoretically supportive of evolutionary psychology. Panksepp and Panksepp (2000) indeed contrast their position as such:

In our estimation, the type of psychological functions that evolutionary psychologists speak of arise largely from the utilization of very old emotional capacities working in concert with newly evolved inductive abilities supported by the vast general purpose neocortical association areas. (p. 125)

It is thus incorrect to assume, as Klasios does, that alternative hypotheses must be blank-slate, or that evolutionary psychology will find consilience with all non-blank-slate models of mind. However, the effect of such theoretical conflation is serious: an inability to conceptualize plausible alternatives means to create a straw-man null hypothesis that effectively renders the theory unfalsifiable.

Design reification and divergent neurophysiological processes

In my paper, I argued that when evolutionary psychologists consider the neurobiological literature, they fail to distinguish between various kinds of neurophysiological systems. This argument is similar to that of Chiappe and Gardner (2012), who borrow Stanovich's (1999) computational terminology to differentiate between two primary systems: "System 1 consists of processes that are implicit in their operation, associative, fast, and not demanding of attentional resources. System 2 consists of processes that are explicit in their operation, deliberate, flexible, slow, and demanding of attentional resources" (p. 673). Importantly, System 2 processes engage in decontextualization of information; inhibiting, redirecting, or overriding automatic System 1 processes; executive planning, working memory, attentional resources, and so on. System 2 processes are comparatively unencapsulated and capable of cutting across content domains. The authors criticize Barrett and Kurzban (2006) for failing to distinguish between these processes in their attempt to clarify the theoretical assumptions of evolutionary psychologists. They also note that Barrett and Kurzban diverge from traditional evolutionary psychologists by re-defining modularity so broadly that it includes working memory and rules of logic. The

consequence of such theoretical augmentation is that almost anything can be conceived of as domain specific and modular, and thus no functional psychological process can be ruled out on a priori grounds as not serving some evolved adaptive function.³ Domain specificity is similarly rebranded to exclude reference to content domains, while favoring functional specialization and formal properties of purported mechanisms.

Information-processing theory is generally permitted to adduce the computer as a metaphor for the mind/brain in the name of generating novel hypotheses, and because it can often remain agnostic about the origins of a purported mechanism. But evolutionary psychology claims to go beyond metaphor—its paradigmatic assumptions make specific ontological claims about genetically driven psychobiological adaptations; they do not have the luxury of being neutral about implementation and its theoretical claims must somehow converge with our knowledge about the structure and function of actual neurobiological systems. Yet critics have observed an aversion to such integration (e.g., Gantt, Mellinger, & Reber, 2012; Lickliter & Honeycutt, 2003). Utilizing the methods of computational neuroscience, some evolutionary psychologists are re-defining modularity by their inferred formal properties within an algorithmic-representational level of analysis—but they arguably do so at the risk of neglecting the implementational details that must ensure theoretical compatibility with veridical neurobiological systems. It would seem that functional mechanisms are capable of being reified through a computational neurophilosophy, though evolutionary psychologists have arguably mistaken their information-processing metaphors for actual biological mechanisms (as recently argued by Gantt et al., 2012).

Evolutionary psychology and the denial of personhood

Evolutionary psychologists believe that the human mind is a computational information-processing machine that is in some sense reducible to the working functions of the brain. Pinker (1997), for example, claims that “The mind is what the brain does” (p. 21) and argues that there is “overwhelming evidence that the mind is the activity of the brain” (p. 64). Daniel Dennett, who Klasios favorably references, has likewise said that: “There is only one sort of stuff, namely *matter*—the physical stuff of physics, chemistry, and physiology—and the mind is somehow nothing but a physical phenomenon. In short, the mind is the brain” (Dennett & Weiner, 1991, p. 33). Once the mind is accepted as being reducible to a physical brain, its organization and function can then be understood in the same evolutionary terms we use to describe all evolved biological systems. Paraphrasing Cosmides and Tooby, Klasios (2014) claims that, “evolution by natural selection is the only known anti-entropic process capable of generating such functional organized design in nature” (p. 127). But human minds entail more than a requisite biology; we are not entirely “in nature” the way that other animals are.

While the brain is a necessary condition for the existence of a human mind, it is a dubious claim to suggest that it might alone account for it (Gergen, 2010). Unlike other animals, humans exist in a symbolic and pluralistic community of other subjective minds where meaning is collectively constructed (Malik, 2002; Tallis, 2011). Within this symbolic matrix, semantic labels allow for the validation of first-person subjective experiences and provide a mental arena for human reasoning, where values can be constructed,

upheld, defended, or discarded. All of these things are created not by a mechanistic machine, but by pluralistic community of rational agents, who are capable of acting on those symbolic systems in ways that machines and other animals cannot:

The reasons that circulate in culture and society acquire action-motivating force only once they find a point of entry from this “objective mind” ... into the subjective mind, that is, into the consciousness of persons who, for their part, are prepared for this by processes of socialization. However much human infants may also be “pre-programmed” for this by their genetic endowment, they do not develop into persons until they get “hooked up” with the intersubjectively shared meanings of the cultural program. Personhood stands out as the early ontogenetic socialization of cognition that then also shapes the structure of action and the formation of motives. (Habermas, 2007, p. 17)

The human mind might thus be conceived as comprising both causal mechanisms that are largely biologically dictated and those that are for the most part symbolically dictated, though still biologically dependent. Insofar as neurophysiology is concerned, we might envision the former mechanisms to involve lower-level systems such as those outlined by Panksepp, whereas the latter might engage a comparatively flexible associational cortex. In the latter case, causal force is governed not by biological mechanism, but by symbolic meaning; exigent biological processes are in other words co-opted within the external matrix of symbolic (i.e., non-material) contingencies that arguably hold an explanatory power greater than the biological structures upon which they rely. It is beyond the scope of this short reply to accurately theorize about the complex interaction of symbolic and biological processes. My point is that any theory claiming to fully comprehend the human animal, must be able to account for, or at least acknowledge, the unique symbolic capacity of human minds. But evolutionary psychologists would seemingly prefer to deny the problem altogether, favoring instead a universally reductionist strategy that attempts to capture the human being in purely physical terms.

When Klasios (2014) says that “it is the *existence* of these systematic underlying patterns at the surface level which support the existence of underlying domain-specific adaptations” (p. 126), and when he appeals to thermodynamics as the “first law of psychology,” he demonstrates his commitment to an ontological monism⁴ that wants to reduce the human being to his mechanistic biology. But like the evolutionary psychologists he defends, he implicitly mistakes his information-processing metaphors for extant mechanisms, and confuses neurobiological mechanisms with decisive causes. Again, while mechanisms may indeed serve as the neural vehicle for representations, their meaning and function are in many cases dictated by a community of symbolically embodied agents and the human world of meanings, values, and justified reasons that have their own causal force. Klasios does not seem to be aware of this problem, as is evident in his claim that:

given the current “black box”-like nature of how a great deal of our higher-order cognitive capacities are instantiated in the brain, investigation at the cognitive and behavioral level in a specifically *adaptationist* manner is a much-needed theoretical lens and methodological heuristic with which to investigate their neurobiological underpinnings. (2014, p. 129)

Neither Klasios nor the evolutionary psychologists that he defends seem to understand that the mechanisms behind our higher-order cognitive capacities are in many cases *part* of the extended and symbolically embedded world of man-made values, ideas, and reasons. Thus, it is not their “nature” that makes such mechanisms “black box-like,” but rather our own ignorance. From this perspective, we can also challenge the rather dubious assertion that we could fully understand such mechanisms by assuming a causal relationship attributed to their “neurobiological underpinnings” and by reductively speculating about them in a “specifically *adaptationist* manner.”

We need to have the right perspective on these higher-order capacities if we are to accurately conceptualize how these mechanisms work. An evolutionary account of human psychology must be capable of theoretically distinguishing between varieties of psychological processes and neurobiological mechanisms—between cases when we might indeed be operating as evolved biological animal, versus those when we act as a partially transcendent (though still biologically dependent) *symbolic* creature—an embodied subject and self-conscious rational agent (Tallis, 2003, 2004a, 2004b). It is important to note that this difference between humans and non-human animals is more than quantitative (e.g., more specialized adaptations); it represents an enormous qualitative divergence, given that we are the *only* symbolic species. Evolutionary psychology’s continued failures to appreciate these differences prove its theoretical deficiencies, while defensive appeals to “thermodynamics” and “functional ordering of atoms,” are but parochial and reductionist machinations that fundamentally misconstrue the true nature of personhood, agency, and human reasoning.

Our conscious choices stemming from our rational agency allow us to rise above our animal nature to envision futures yet to be realized, while leaving a history that details our accomplishments and failures: “Every animal leaves traces of what it was; man alone leaves traces of what he created” (Bronowski, 1973, p. 37). Evolutionary psychology is itself a part of that history of ideas. However, it is not the scientifically progressive paradigm-shift it claims to be, but rather a regressive theory of pessimism as it relates to the human being as rational agent. Kenan Malik (2008) notes that since the atrocities of World War II we have grown increasingly despondent toward the Radical Enlightenment project and of our capacity for reasoning, unity, and progress. We have come to regard ourselves as either passive objects that are a product of culture, or passive objects that are effectively a product of genes. Both conclusions are false, though if reason is to be salvaged, we must evoke it here so that we might come to terms with what it means to be human.

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Notes

1. For example, where I differentiate between primary and associational areas: “While the basic components are there in the motor strip (which is to a degree pre-specified or module-like in structure), the complex neuronal integration and differentiation arguably comes by way of later-evolving (and later-developing) associational areas in the prefrontal cortex that make greater use of learning and experience to create new functional networks” (Peters, 2013, p. 309).
2. The SSSM depicted by Tooby and Cosmides (1992) has since been criticized as a rhetorical tactic (see Richardson, 2007; Wallace, 2010).
3. This approach has arguably opened the floodgates to some rather questionable theoretical offshoots such as evolutionary aesthetics (Zaidel, Nadal, Flexas, & Munar, 2013) and evolutionary political science (Lopez & McDermott, 2012).
4. See Maarten Derksen (2005) where he explores the idea of rejecting ontological monism in favor of delineating the boundaries between nature, culture, and differing epistemologies.

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