



Dynamic Ecologies and the Biological Bases of Violence: A Critical Analysis of Jonathan Gottschall's *The Rape of Troy*

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Abstract: Jonathan Gottschall's *The Rape of Troy* employs an array of interdisciplinary resources in order to explain the relentless cycle of Homeric war as emerging from the operations of evolutionary competition over reproductive resources. This paper suggests that considerations regarding the operations of psychological adaptations in *Homo Sapiens* will be greatly benefited from characterizing the socio-historical properties of human life in terms of a dynamic array of ecological niches. By characterizing human history as a dynamic array of ecological niches, emphasizing that we have an active capacity for ecological modification, and showing this to be responsible for the oft exapted character of our behaviour, I suggest means of coherently distinguishing 'cultural' determinants of human psychology from 'evolutionary ones'. Moreover, I hope to have demonstrated that we can sustain these distinctions as applicable to different levels of description rather than distinct sorts of natural phenomena or ontological categories. By reflecting on these issues through the lense of the philosophical issues of reductionism and intentionality we can understand the distinction between evolutionary directives and psychological motives.

Resumo: *The Rape of Troy*, de Jonathan Gottschall, lança mão de uma série de recursos interdisciplinares para explicar o intenso ciclo de guerras homéricas como emergindo das operações de competição evolutiva por recursos reprodutivos. Este artigo sugere que as considerações concernentes às operações de adaptação psicológica no *Homo Sapiens* se beneficiarão imensamente da caracterização das propriedades sócio-históricas da vida humana em termos de um conjunto dinâmico de nichos ecológicos. Ao caracterizar a história humana como um conjunto dinâmico de nichos ecológicos, enfatizar nossa capacidade ativa de modificação ecológica e demonstrar ser consequência disso o caráter frequentemente exaptado de nosso comportamento, eu sugiro um modo de distinguir coerentemente entre determinantes "culturais" e "evolutivos" da psicologia humana. Espero ainda demonstrar que essas distinções são aplicáveis não a tipos distintos de fenômenos naturais ou categorias ontológicas, mas a

diferentes níveis de descrição. Refletindo sobre esses pontos através das lentes das questões filosóficas do reducionismo e da intencionalidade, podemos entender a distinção entre diretivas evolutivas e motivos psicológicos.

Introduction

Peace is an exception to the violent rules involved in the games played by the species *Homo Sapiens*. Of course, the games in question are not those played in schoolyards but on battlefields and in marketplaces. I am using the word 'game' here to refer to the competitive scenarios described by game theory. But why is peace such an exception, especially when "even in warlike cultures peace is generally considered preferable to war, and harmony preferable to strife"? (GOTTSCALL, 2008, 40). One answer to this question can be found in Jonathan Gottschall's *The Rape of Troy*. In this remarkable example of interdisciplinary scholarship, Gottschall employs evolutionary biology, anthropology, ethnography, game theory, and classical studies in order to better understand the forces responsible for the continuous patterns of conflict that were typical of the Greeks described in Homer's epics. In doing so, he presents us with a truly novel account of Homeric violence, one which attempts to help us understand the tragic ubiquity of warfare as rooted in universal – rather than historically contingent – biological conflicts. In particular, Gottschall argues that, evolutionarily speaking, competition over women can be seen as the driving force behind the cycle of conflict encumbering this historical period (GOTTSCALL, 2008, 10). Taken this way, competition over "power, status, and material goods" is only proximate means of achieving the ultimate end of reproductive access and success (GOTTSCALL, 2008, 10). This challenges much of Homeric scholarship, which has often been preoccupied with explaining these conflicts by rendering them as having been fought over the resources that Gottschall has rendered 'proximate'. Nonetheless, Gottschall's employment of evolutionary theory is not meant to replace more traditional approaches but rather to "provide a broader view capable of placing all elements of Homeric conflict within a single explanatory context" (GOTTSCALL, 2008, 3).

Such an ambitious project is certain to have consequences that are relevant to fields and topics that extend beyond the scope of its particular subject of study. Further, it is also

likely to meet resistance and inspire opposition. Gottschall anticipates this by expressing an awareness of the spectres of biological determinism and reductionism, which linger behind any evolutionary account of human behaviour (GOTTSCHALL, 2008, 8). Nevertheless, he passes over these issues too hurriedly and fails to express any serious concern about them. In what follows I will briefly summarize the main arguments in Gottschall's text and then provide a number of critiques, which attempt to show *The Rape of Troy* to require auxiliary considerations in order to strengthen its conceptual coherence. Further, the following investigations attempt to celebrate the ambitions of this work by taking seriously the idea that "[t]he promise of a new research program is defined at least as much by its ability to inspire interesting questions as by its ability to answer them" (GOTTSCHALL, 2008, 9).

The Rape of Troy

The central claims of *The Rape of Troy* all issue from the manner in which evolutionary biology can be used to explain why "predictable patterns of violence should prevail in *all* societies, even those with highly limited intercultural contact" (GOTTSCHALL, 2008, 42). That is, evolutionary biology can help us understand the origin of behavioural properties that appear in all societies and therefore cannot reasonably be supposed to be 'learned' or 'culturally generated'. Generally speaking, evolutionary accounts of human psychology are opposed to accounts that embrace what the evolutionary psychologists, John Tooby and Leda Cosmides, call the "Standard Social Science Model" (or SSSM) (TOOBY & COSMIDES, 2005, 6). The SSSM is meant to characterize the idea of the mind as a "general-purpose, content-independent, and equipotential" system, which gains most or all of its organizational principles and contents by way of learning (TOOBY & COSMIDES, 2005, 6). The SSSM is a blanket term for theories of cognition that do not draw from the biological sciences to inform their understanding of the mind. Generally speaking, such theories see the mind as an equipotential system, one that employs general learning as its sole functional capacity. Thus, the SSSM model presupposes that the mind is a 'blank-slate'. Our cognitive capacities are then said to arise as a result of the manner in which this blank slate becomes organized by, and imbued with, mental contents via socialization. The SSSM then takes the brain or mind to have one general-purpose function and this function is

presumed to be something like learning. If learning is taken to be the primary function of the brain, every other cognitive capacity – speaking, recognizing objects, finding a mate, aggregating numbers – these can then be rendered as sub-capacities that are ultimately explained by the high degree of cognitive malleability enabled by the function of learning. The SSSM does not consider the possibility that human beings might be built with a number of evolved functional systems that play a role in dictating the character of our mental life (TOOBY & COSMIDES, 2005, 6). It is noteworthy that such a theory of mind has the consequence of rendering persons as “psychosexually neutral” blank slates (VANDERMASSEN, 2011, 733). That is, such a theory precludes the possibility that men and women might have distinct psychological architectures as a result of their biological differences. Nonetheless, there are powerful theories demonstrating the necessity of sexually dependent cognitive differences, and it is from here that Gottschall’s main argument proceeds.

The Harvard biologist Robert Trivers formalized a theory of sexual selection, which argued that differences between males and females are largely due to different degrees of necessary parental investment in sexual reproduction. Females are, biologically speaking, defined as “the member of the species with larger sex cells” and they therefore possess the more valuable reproductive resources (GOTTSCHALL, 2008, 44). They also must invest a much larger amount of time and energy in reproduction; for women reproduction is more risky and more costly. Consequently, women will be more discriminant when selecting mates as a result of these greater costs. On the other hand, due to their minimal reproductive investment, men will be less discriminating about mates, will be more promiscuous, and have the potential for enormous reproductive success by these means. Unlike males, females do *not* increase their evolutionary fitness by increasing the number of sexual partners they have. This then has the consequence of generating a “*fundamental shortage of reproductive capacity relative to male demand*” (GOTTSCHALL, 2008, 45) Trivers emphasizes that, since the sex that invests more has greater reproductive value, the sex that invests less will compete for opportunities to mate with the former (GOTTSCHALL, 2008, 44.). This then increases the ‘value’ of female reproductive capacities and leads men to be willing to engage in risky or costly behaviour as ‘payment’ for this valuable resource. Moreover, since men are almost always willing to reproduce, it gives women little incentive

to compete for sperm. Consequently, a mating system of “effective polygyny” emerges where competitively successful males come to exploit the reproductive capacities of a number of females while other males die without progeny (GOTTSCALL, 2008, 45). This, along with other factors such as excess female mortality¹, leads to an imbalance of ‘operational sex ratios’, which is defined as “the number of available men to available women” (GOTTSCALL, 2008, 120). The notion of operational sex ratio allows for there to be circumstances in which the actual ratio between sexes is relatively equal while the ratio of reproductively eager men to reproductively available women remains imbalanced.

Consequently, competition over access to reproductive resources is seen to be the prime cause of violence within human societies. This, Gottschall argues, then “applies as much to coalitional conflicts as to individual conflicts” (GOTTSCALL, 2008, 47). Men, of course, fight over things other than women; nevertheless, conflicts over material resources or social status are conflicts over resources that inevitably afford reproductive success. Further, there is a strong correlation between social status, wealth, and reproductive success; high-status men tend to have access to a greater number of desirable women (GOTTSCALL, 2008, 49). That violence emerges from male competition is evidenced by the fact that being male is the single strongest predictor of a likelihood of committing violent acts (GOTTSCALL, 2008, 43). Finally Gottschall describes a series of “self-reinforcing feedback loops” that, due to game theoretical considerations, lead violence and war to be continuously perpetuated with little hope of breaking this vicious cycle (GOTTSCALL, 2008, 151). I will mention what I think to be the two most significant examples of such vicious cycles.

The first of these has to do with the manner in which female mating preferences cannot help but favour aggressive men. In a violent world, women have no choice but to choose aggressive men for their mates, failing to do so would leave them vulnerable to those other men who have these conflictual traits. Nor can men themselves choose to refrain from violence without dangerously disadvantaging themselves (GOTTSCALL, 2008, 117). Consequently, we end up with the frustrating cycle that compels women to choose violent men to protect them from a dangerous world but the world comes to be

¹ Gottschall devotes the majority of chapter 7 to providing evidence for excess female mortality as the tendency for warring societies to give preferential treatment to young men would have led to an excess mortality of young females.

populated by dangerous men because, at least in part, women make such choices (GOTTSCHALL, 2008, 157).

The second of these is what Gottschall calls “the arms race to produce larger numbers of interest-asserting sons” (GOTTSCHALL, 2008, 157). This is the cycle generated by the fact that boys are bred to fight war *because* there is war to be fought over access to reproductive resources, which become increasingly scarce as war concentrates females into powerful men’s homes, while also encouraging early female mortality (EFM) through negligence or active murder of young girls who were risks rather than assets in a war. This then further skews operational sex ratios by making reproductive access to females difficult and thereby decreasing the ratio of viable female mates to viable male ones. Attempting to change the sex ratios so that they are feminized would then endanger the society in question from those societies which have refrained from this. Thus, this terrible cycle results from the manner in which masculinized sex ratios act as both the cause and the effect of war.

While Gottschall’s arguments are full of nuances and details that I cannot hope to capture in such a concise summary, the major features of his argument should now be familiar to the reader.

Philosophical Referees

Gottschall provides us with an analysis of Homeric violence in which the strivings unique to a cultural milieu, strivings such as “honour, power, status, and material goods,” come to be rendered as ultimately subservient to the reproductive ends of our evolutionary ancestry (GOTTSCHALL, 2008, 10). As we have already seen, “[f]or Homer’s heroes, as for ordinary men, women are not a proximate route to the ultimate goals of honour, political power, and social dominance... [rather these]... are proximate routes to the ultimate goal of women” (GOTTSCHALL, 2008, 10). And while this analysis is common to most evolutionary investigations of human behaviour, it is my belief that we require a more adequate model of precisely how ‘proximate’ and ‘ultimate’ causes or ‘nature’ and ‘nurture’ contribute to shaping the behavioural and psychological attributes of our species. As such, the current analysis does not aim to refute or reject Gottschall’s claims (nor those of other theorists

who wish to give evolutionary accounts), but rather to take his work as a powerful example of why we need to develop such a model. In particular, I feel that the possibility that the discipline of philosophy can mediate between the so-called 'hard' and 'soft' sciences of human nature has been largely neglected. The philosopher has a unique position in such discussions, as their field does not easily fit in the bipartisan conflict between the 'sciences' and the 'humanities'. We might then consider philosophy as providing a good candidate to act as a 'referee' between this kind of intellectual tribalism, which mars the current debates, since the philosopher has no necessary adherence to any particular nation in the geography of our current academic environs.

As a philosopher I cannot contest the empirical facts nor the particularities of the debates Gottschall discusses within the context of Homeric scholarship. Nonetheless, as a 'referee' I can try to make sure that the various approaches to studying human nature are carefully examined in a way that allows us to move closer to integrating these distinct modes of investigation. I wish only to tighten up the interdisciplinary connections that Gottschall is making, and suggest a distinct mode of interpreting the data by suggesting a novel way of thinking about the ecological relations persons have to their historical environment.

My approach to evolutionary psychology emerges from reflections on various issues in the philosophy of mind with a particular emphasis on two well-known problems. The first and most obvious issue is the problem of reductionism, which remains a spectre in any discussion regarding the biological bases of the human 'mind.'² Moreover, the issue of biological determinism, which Gottschall mentions a number of times, casts a shadow over the general discourse of evolutionary psychology. Gottschall correctly states that "[a]n evolutionary biology that ignores or de-emphasizes the importance of physical and social environments is, in fact, profoundly *un-biological*" and this demonstrates his awareness of the importance of social influences on behaviour (GOTTSCHALL, 2008, 9). Nonetheless, he does not directly address the more metaphysical issue of *reductionism* as opposed to *biological determinism* despite their close interrelations. Simply emphasizing that we are also shaped by our social environment does not say enough about the role of 'nurture' in explaining why we do the things we do. Gottschall's inclusion of the issue of biological

² I here use *mind* to denote the array of explananda for which fields such as neuroscience and evolutionary provide explanans.

determinism says little more than this: In his work, he has only included it as an afterthought, and even then, one that suggests that this is not a problem at all and that a solution is found by the inclusion of gene-environment interactions in our analyses. I hope, in what follows, to show that this is too hasty a conclusion and that the issues of reductionism and biological determinism are more serious and require more serious consideration than Gottschall's work suggests. Again, this isn't to say that Gottschall is insensitive to or ignorant of the social sciences and his cursory discussion of these problems says little about the overall quality of his work.

The second issue is the problem of intentionality. It is important to distinguish this from the problem of ascribing agency or intentions to humans or other animals. Rather, this philosophical problem seeks to understand the mind's intrinsic capacity to have contents, which are *about* things in the world. Other than for conscious organisms, intentionality appears to be absent from the rest of nature. Philosophers then ask, "how might we then imagine it to arise out of a series of physical interactions that do not themselves possess this property?" And while this philosophical problem may seem to be a far cry from the sorts of debates surrounding 'nature' and 'nurture', an investigation into the question of how we come to individuate and refer to features of our environment provides us with a means of understanding how biology and culture work in tandem in generating human thought and behaviour. Of course, Gottschall is not himself writing about the problem of intentionality and I do not propose to fault him for omitting this seemingly obscure topic from his work. Rather, I feel that we must address this issue, the issue of how minds or brains are related to the world in order to better understand what it means for us to be dictated by evolutionary "forces that...[we]..cannot comprehend, explain, or confront" (GOTTSCALL, 2008, 141). In particular, by clarifying the elements involved in our intentional capacities, we can better understand how it is that causal forces solicit doxastic and volitional activity. We might see Gottschall as providing us with an account, which shows us *that* we are, in some way, dictated by impersonal evolutionary imperatives. What I propose to do is suggest a model of *how* it is that we come to be dictated by these forces. While Gottschall's work may perhaps be able to stand on firm footing without these auxiliary considerations, I feel that it is in danger of stumbling without them.

Intelligibility Criterion³

One might question the intelligibility of the claim that we are ultimately governed by evolutionary imperatives and the “clean, relentless, [and] almost mathematic logic” of game theoretical determinations (GOTTSCHALL, 2008, 151). I do not wish to suggest that the claim isn’t itself intelligible but that our current models of human thought have not shown what this intelligibility consists in. It can be hard to coherently understand what is meant by claims like “the reason he murdered that man and raped his wife is that he was motivated to secure a reproductive advantage” as such explanations seem to be operating at a level of description that is distinct from our everyday understanding of why people do things. I am not suggesting, like some ordinary language philosophers, that we privilege the everyday meaning of words over their scientific meaning; rather, I wish to point towards a case in which what the philosopher Wilfred Sellars calls the ‘scientific’ and ‘manifest’ images of man have come into conflict. Our failure to show how these distinct ways of seeing ourselves come to coherently fit together is what generates questions of biological determinism, and more generally, reductionism in the first place. Without giving an account of how biological imperatives come to feature in our conscious volitions, and more generally, in those features of human behaviour, which can be said to evidence agency, we run the risk of conflating “evolutionary function and psychological motivation” (VANDERMASSEN, 2011, 734). Again, Gottschall’s book does not make such an error but this is because he doesn’t address this crucial issue. He himself says that the “evolutionary approach cannot replace approaches operating at different analytical levels; the best it can do is compliment them” but again appears to regard this to mainly consist in a description of how environmental factors come to interact with biological ones in a manner that bears on the expression of genes (GOTTSCHALL, 2008, 50). It is of course true that environmental factors do come to bear on the ontogenetic development of human organisms; this is what we mean by *nurture*. But the long-standing questions surrounding biology and culture or nature and nurture, have mostly pointed towards an answer, which states the obviousness of their joint involvement, while still wondering how they manage to do this, and to what extent each of them is responsible for the development of a given trait. Questions about the

³ The following considerations emerge from applications of my ongoing doctoral research at the University of Ottawa.

degree to which each comes to play a role in producing human behaviour, the precise difference between the two, and the operations by which these come to bear on human thought and behaviour have not been settled. I wish to suggest that we can come to answer such questions only if we:

- 1) Gain a clearer understanding of *what makes human ecology unique*: history!
- 2) Refine the bifurcated categories of nature and nurture, biology and culture, and even causes and reasons, into a more fine-grained set of categories. This could be done by identifying different levels of analysis, their explanatory scope and function, and their interrelations. So far as I know, the wide array of disciplines that study the activities of human beings have no methodological, interpretive, or conceptual framework by which to overcome the monologic character of discourse within a particular discipline. Discourse about human nature should draw from *the humanities* as much it does from the *human sciences*.
- 3) Identify how it is that cultural forces can causally influence the ontogenesis of a person in a way that modifies their cognitive architecture. We want to avoid a model in which the environment 'activates' genes in a manner by pushing the buttons of organic automaton and causing its genetic wind-up motor to run its course. Of course, Gottschall claims to deny biological determinism but he denies too basic of a picture of what it is to be 'determined' for him to successfully dismiss this suggestion. His, and many other theorists', claim that society is of course ecologically relevant to the manner in which genes are expressed still seems to render us as passively determined to develop tendencies in accordance with the manner by which the conductor of nature dictates the expression of our genetic keyboard.

These three issues will be addressed, respectively, in what follows.

The Causal Efficacy of Historical Ecologies

So, how do we understand the manner in which evolutionary capacities come to be shaped by social forces and vice versa? I will here delineate my account of human history as a *dynamic array of ecological niches* and suggest how this can be seen to render the ontogenesis of persons as a unique natural phenomenon, one which does indeed distinguish

us from the rest of the evolved world. My motivations for this do not issue from “resistance to [...] an approach that snatches humans from the top of the chain of being, and hurls us in the blood and filth to splash and grasp with other animals” or because of some difficulty in “assimilating Darwin’s news that Adam and Eve were not moulded lovingly from clay, inspired with life, and set apart by God as masters of His creation” (GOTTSCHELL, 2008, 160). Rather, I do wish to emphasize that certain obvious facts about human nature suggest that any description of human behaviour will employ an array of concepts and principles that are largely absent from any analysis of other organisms. These facts are as follows:

- 1) Human beings take a great deal longer than any other organism to reach maturity.⁴
- 2) Human beings have expanded their environmental milieu far beyond the conditions proposed in models of what is called “The Environment of Evolutionary Adaptedness or (EEA)”. This is evidenced by:
 - i. Observing that we have learned to survive in nearly every ecosystem and have even managed to find ways to live extra-terrestrial space.
 - ii. Our terrible destructive power over the rest of nature as well as ourselves.
 - iii. Human environments can be and are most often deliberately changed or constructed by human beings (houses, crops). So far as I am aware, there are few organisms that live in an environment that is nearly entirely or largely constructed by that organism and none that does so in a way that is comparably adaptive.
- 3) Human behaviour is largely exapted.⁵

The facts mentioned above are those, which are most obviously studied by archaeologists, classicists and historians. The historical character of human existence is possibly one of our most particularly sapient traits, one acknowledged by every culture, while also being one that is so complex that no culture has yet developed an adequately ‘scientific’ means of articulating this recognizable phenomenon. There is no singular methodology, which can reliably or comprehensively explain or describe the unimaginably

⁴ This both increases the degree of parental investment involved in human upbringing, as well as acting as a condition for the long and complex process of social inculcation.

⁵ I shall discuss this topic in more detail in the section titled ‘exaptation’.

massive sea of causal processes and variables that are responsible for historical change. True, the sort of work Gottschall presents us with would necessarily be involved in any attempt to provide such an account, but it can at best attempt to explain how certain relatively static environmental variables, along with particular behavioural outcomes, are consistent with the predictions of evolutionary psychology within a particular era. This is due to the need to identify a stable set of environmental variables to make any prediction of a behavioural utility; one would need, as Gottschall has done by way of his ethnographic research, to identify the environmental features that the organism's adaptive traits function to overcome. The further claim that, we could explain the causal forces, principles, or aggregate of events, which are responsible for the sorts of human behaviour responsible for the emergence of Roman architecture, the precise rituals of a religious order, or the prescribed movements of a ballet dancer, by way of 'biological science' would seem to require a rather drastic expansion of the sorts of phenomena we deem to be within its explanatory scope. If we define 'biological science' by reference to the current methods, assumptions, and practices of most biologists, such phenomena seem to be outside its investigative purview.

It is important to pause here and take a look at the remarkable novelty of Gottschall's method of explaining the historical analogues of a semi-mythological work of literature by recourse to ethnography, evolutionary psychology, anthropology, and game theory. He is using explanatory tools and methods that are drastically distinct from those used by traditional Homeric scholars and thereby inaugurates a truly novel means of looking at mythological texts. But it is also important to recognize that the things studied by more traditional classicists and historians do indeed have another dimension in which the evolutionarily proximate causes such as "honour, power, status, and material goods," come to be evaluated as primary or 'ultimate' from within the context of human psychology (GOTTSCHALL, 2008, 10). Further, this suggests that part of the subtext that students of the humanities might find as an affront within evolutionary accounts, is the idea that 'ultimate' evolutionary stories are superior or more often true than those of history or sociology. This has to do with the idea that that which is more causally basic or on a lower analytical level of emergence, is closer to reality due to its greater precision and predictive reliability. While this claim is, I think, generally true, it does not in any way provide definitive

criteria with which to evaluate the ontological fidelity of propositions within a given discipline. As such, we need to be careful of falling into the trap of saying something like the following: "Historians, Classicists and Homeric warriors themselves, thought that warfare was for the sake of honour, glory, self-affirmation, the pleasure of women and the sense of having fulfilled one's social duties, but these soldiers were, in fact, fighting for access to resources that increase reproductive availability and success." While Gottschall does not go so far as to make this claim without recognizing that proximate factors are also deeply instrumental, Randy Thornhill and Craig T. Palmer's text, *A Natural History of Rape*, does indeed slip into a sort of deflation of proximate causes as peripheral or secondary in explanatory significance. In this text they state that non-evolutionary accounts of human nature are "worthless" and that "we will be better off if we ignore them completely" (THORNHILL & PALMER, 2000, 3). The reason I mention this work is simply to point to an example of how easy it might be to slip into this methodological blindness, one which can be avoided if we pay heed to the following two slogans. Firstly, to quote Stephen Jay Gould and Elizabeth Vrba, we should not confuse "current utility with historical genesis" (GOULD & VRBA, 1982, 6); and Vandermassen's warning against conflating "evolutionary function and psychological motivation" (VANDERMASSEN, 2011, 734).

Intentionality and Biological Determinism

The problem of intentionality might seem to be obscure from the perspective of evolutionary psychology, as evolutionary theorists do not often discuss it. Nonetheless, I feel that a careful examination of the manner in which we propose our minds to individuate, represent, and direct our attention towards features of the environment is essential to an adequate understanding of how evolutionary forces come to impact behaviour. When we give evolutionary explanations for people's behaviour, we end up providing a series of sub-personal⁶ causes, which are not directly available as mental contents. That is, we give explanations by way of causes, which need not feature in an agent's own explanations for their behaviour. And while, of course, behaviour is influenced by causal factors which lie

⁶ Here sub-personal is used to indicate operations, which function beneath the conscious awareness of persons. I have used this term in order to avoid terms such as 'unconscious', which has too many Freudian associations, and pre-conceptual, which has too much philosophical baggage attached to it.

outside of conscious awareness, we need a story of how it is that one comes to be influenced by such factors, without also requiring that this story render us as determined by them. The evolutionary story does run the risk of trapping us in conceptual frameworks, which lead us to “biological fatalism and reductionism, the error of the naturalistic fallacy (the fallacious supposition that what is natural is both ‘good’ and inevitable), and perhaps most importantly, the unquiet ghosts of Social Darwinism” (GOTTSCHALL, 2008, p. 60). It does this precisely because it takes our behaviour to be strongly influenced by factors that extend beyond the conscious grasp of persons subject to them. As such, it is difficult to understand how it is that we come to be dictated by forces alien to our awareness, without also giving an account of how they do this that doesn’t make our conscious judgements, experiences, and decisions, incidental to the actualization of our behaviours. In trying to give an account of *how* these forces come to bear on our actions we have to go further than articulating the conditions under which these actions occur; we must also give an account of how these conditions come to become psychologically active in a way that somehow coheres with our general understanding of human psychology or the ‘manifest’ image. I of course, cannot provide the totality of such an account within the confines of this article, nonetheless, the following considerations hope to point towards a means of giving a more lucid account of these factors.

For the most part, discussions on intentionality have often seen the ‘directedness’ and ‘aboutness’ of an intentional state as equivalent or synonymous. An agent is in an intentional state I if and only if they are thinking *about* or *directing* their thoughts *towards* some content x. That is, the thing to which our thoughts are directed is seen to be equivalent to that which our thoughts are *about*. Nonetheless, when one is lustful or hungry their behaviour can be said to be directed towards reproductive or nutritive ends, despite the fact that it is unlikely that these ends are what the agent in question is thinking about. To suppose the psychological content of lustful states involves awareness of the reproductive ends for which such states evolved, is as absurd as supposing states of visual awareness involves knowledge of the evolutionary ends for which sight developed. Nonetheless, it is also difficult to understand how such psychological states can unconsciously direct us towards ends which are themselves absent from such states. What does it mean for us to be directed towards ends, which we are not thinking about? I think

the answer to this question can be found if we learn to understand the nuanced relationships between phylogeny, adaptation, and directedness as well as ontology, exaptation and aboutness.

Ecological Mismatch

Having emphasized the unique character of our species' ecological relations, I can now begin to discuss the distinctive role of *exaptation* within human psychology. Exaptation is defined as the reuse of a biological function for the sake of ends and for the performance of tasks which such biological structures had not evolved for. Gottschall himself gives a number of examples in which this property is active. The first of these is in a starred footnote on page 55 where he cites A. H. Mokdad et. al. in saying that:

Human psychological propensities and modern human environments may be 'mismatched'. As an example of this mismatched principle, evolutions are often fond of citing human greed for fat and sweets. These nutrients promoted health in ancestral times when they were usually in short supply and when our energy expenditures were much higher. However, in modern, sedentary populations, our greed for these nutrients, combined with their ready availability, is largely responsible for an obesity epidemic that now ranks as the second leading cause of preventable death in the United States.

This 'mismatch' has been a significant feature of human environments for a long time and cannot be said to be unique to 'modern' society. This is one of the only places in which I feel comfortable raising a potential critique of Gottschall's empirical claims. Throughout the book Gottschall appears to assume there is some sort of 'match' between the environmental conditions of ancient Greek society and the evolutionary conditions under which our violent and sexual propensities arose. Furthermore, he also appears to assume that selection is occurring within the timespan relevant to his inquiries. This is most evident in his discussions of sexual selection in Homeric society: these assume that female mate selection was still operative in genetically selecting aggression in men. Nonetheless, as John Tooby and Leda Cosmides aptly express:

[...] functional organization in the organism-its set of adaptations is designed to exploit the enduring properties of the environment in

which it evolved (termed its environment of evolutionary adaptedness, or EEA) and to solve the recurring problems posed by that environment. Adaptations evolve so that they mesh with the recurring structural features of the environment in such a way that reproduction is promoted in the organism or its kin. Like a key in a lock, adaptations and particular features of the world fit together tightly, to promote functional ends (COSMIDES & TOOBY, 1992, 69).

The notion of the EEA is significant insofar as it provides the measure by which 'mismatch' of organism and environment becomes possible. Given that our adaptive traits⁷ are precisely associated with the particular conditions present in the EEA, any environment that does not possess identical conditions with the EEA must, to some degree, provide an instance of the sort of mismatch in question.

As such, the development of human civilization can be seen as a movement away from the EEA. Furthermore, such developments issue from our aforementioned tendency to modify our environments generationally.⁸ So, given the aforementioned uniqueness of human ecological relations we can begin to see a picture of human nature – and culture – that regards our species to be uniquely 'mismatched' with our environment. That is, it is obvious that what we call history or culture must signify the manner in which this species comes to employ its evolved mechanisms within *novel* environments, which we ourselves have generated.

Thus, the evolutionary story of humans must go something like this:⁹ in the EEA *homo sapiens* evolved as a result of an accumulation of distinguishing adaptive traits which emerged as some population of our closest evolutionary ancestor, came to possess unique properties, which enabled them to overcome particular environmental obstacles to reproductive success. These properties then must have enabled some populations to survive where others did not and, as the adaptationist story goes, this population survived *because* their unique adaptive traits enabled them to overcome particular 'selection

⁷ Throughout the text my mention of adaptive traits or evolved characteristics will always be referring to psychologically relevant properties.

⁸ It might be relevant to pause here and note some similarities with the EEA and the notion of the "state of nature" in political philosophy. Thomas Hobbes and Jean Jacques Rousseau generate their political theories in light of a purported 'original state of nature' from which we emerged. Hobbes sees civilization as liberating us from the violent tendencies of our nature whereas Rousseau regards this 'civilizing' development as responsible for the ethical failures of humankind. In either case, they identify civilization by way of its contrast with some purported natural state and then proceed to generate their political and ethical theories on that basis.

⁹ This 'story' is drastically oversimplified, as the precise mechanisms of selection in human psychology have not yet been adequately described.

pressures' which are defined as features of an environment that influence the likelihood of the survival of one's offspring. So far so good. However, something interesting happens after *Homo Sapiens* came to reach an evolutionary equilibrium between adaptive traits and selection pressures – that is, after the species came to be distinguished from the rest of nature. Our adaptive traits gave us capacities, which enabled our ancestors to modify our environments so that certain selection pressures came to be less common or active in their lives. For example, we can imagine that as soon as our ancestors built shelters, adaptive traits involved in finding naturally occurring places of refuge would be less 'active' in the lives of the individuals in question. Here we can see that a number of adaptive traits (e.g. those involved in the development of tools: cooperative activity, spatial reasoning etc.) would have produced behaviors that directly modify the environment in which the current generation lived and in which the next generation would thrive. As this came to have cumulative effects on the environment, human settlements and civilizations would have emerged. Finally, we come to have a species whose very activity came to modify the conditions under which its activities occur: we came to develop as a *historical species* in which the activities of each generation come to modify the conditions under which the next one comes to develop. We thereby modify the ontogenetic conditions of human development by way of our creative employment of our phylogenetically developed adaptive traits. The 'mismatch' between organism and environment is then established by this capacity for active ecological modification.

Exaptation

An important consequence of this 'mismatch' is that human adaptive traits come to be *exapted*. *Exaptation* is defined by Stephen Jay Gould and Elizabeth S. Vrba as characteristics which "evolved for other uses (or for no function at all), and [were] later 'coopted' for their current role" (GOULD & VRBA, 1982, 6) That is, exaptation is the production of useful *effects*, which increase an organism's chances of survival by way of using some organic trait for the performance of tasks which that trait did not evolve to perform. We can contrast this with two definitions of *adaptation*. The current authors, following G.C. Williams, define adaptation as "any feature that promotes fitness and was

built by selection for its current role" (GOULD & VRBA, 1982, 6). The next definition is given by Elliott Sober, where he states:

"Characteristic c is an adaptation for doing task t in a population if and only if members of the population now have c because, ancestrally, there was selection for having c and c conferred a fitness advantage because it performed task t " (SOBER, 1993, 85).

Both definitions emphasize that an adaptation is some feature of an organism was selected for because it enabled the completion of particular fitness enhancing tasks. Such tasks can then be seen as the *function* for which the adaptive trait developed (GOULD & VRBA, 1982, 6). Such emphasis is necessary if we wish to avoid conflating "current utility with historical genesis" (GOULD & VRBA, 1982, 6.). That is, one cannot regard the current utility of some trait c in performing task t as equivalent to the evolutionary or adaptive utility for which the trait was selected.

While it is clear that the determinants of behaviour in most organisms must be understood as dictated and constrained by adaptive functions might we understand my rational capacity to carry out these investigations in a similar way? Could characteristic c (philosophical reasoning) be an adaptation for doing task t (writing philosophical theses) in a population because c somehow conferred a fitness advantage to our ancestors? Clearly the current utility of the brain functions involved in my writing this article is not equivalent to the evolutionary utility for which such brain structures must have evolved. Consequently, it is clear that a great deal of human behaviour and cognition depends on the co-opted use of organic traits in a way that renders their useful effects as exapted. As such, we can see the ecological mismatch familiar to our species as responsible for the conditions under which exaptation comes to be likely. This is due to the fact that an adaptive trait c cannot be expected to serve the role of performing fitness enhancing task t if circumstances in which task t promotes fitness are no longer ecologically present.

To use Gottschall's example, we could say: characteristic c (greed for sugar and fats) is an adaptation for doing task t (finding rare nutrients) in a population because members of this population now have c since greed for sugar and fats was selected for as it enabled the discovery of rare nutrients which conferred a fitness advantage *in environment $E+n$* where n signifies the temporal distance of an ecological milieu from that of the EEA and E signifies the EEA. I have included the proposition "*in environment $E+n$* " as a part of this definition of

our lust for sugars and fats as an attempt to augment Sober's own definition so that it includes the relevant ecological considerations. Given that we live in an environment $E+n$ we cannot see c as conferring the same fitness advantage as it would have in E . As such, we can see that in any case in which we are investigating the operations of characteristic c in any $E+n$ ecological milieu, the possibility that c is exapted arises¹⁰.

Biological Vs. Psychological Value: The Intentionality of Desire

Now that we have discussed the issues of ecological mismatch, exaptation, and their unique roles in explaining human behavior, we can return to the problem of intentionality and its relevance to Gottschall's work. As discussed earlier, evolutionary psychology makes it difficult for us to understand how it is that sub-personal evolutionary propensities come to influence behavior without rendering us as biologically determined puppets. In stating that an agent's behavior t is an expression of some evolutionary function c we must distinguish the evolutionary and psychological import of the successful performances enabled by c . That is, we must be able to distinguish the evaluative and semantic character of an agent's mental contents from the causal conditions under which such mental contents emerge. Put another way, we must distinguish the causal *directedness* of a mental state from its semantic *aboutness*. We otherwise fall into the problem of regarding people as dictated by forces that are outside of their awareness and therefore outside of their control. Such a concession would amount to biological determinism. Further, as I have said above, merely stating that environmental factors influence human cognition is not sufficient to eliminate biological determinism and such a meager account of the role of socialization fails to provide an inferentially valid route from adaptive functions to their instances in an ontogenetic context. That is, it lacks an adequate means of articulating how phylogenetic adaptive traits c come to be ontogenetically realized, *as psychological features*, for task t within an environment $E+n$.

So, how might we distinguish an agent's "conscious strategizing" from their unconscious evolutionary imperatives (VANDERMASSEN, 2011, 733)? Again if we fail to

¹⁰ It might be important to here note a distinction between evolutionary *by-products* and *exaptations*. The former are *any effect or consequence of an adaptive trait that do not arise from their evolutionary functions* whereas the latter are a subclass of the former in which the effects confer a fitness advantage (ANHR, P.9).

clearly articulate this distinction, we cannot understand why it appears absurd to suggest that, for example, “rapists are, consciously or unconsciously, seeking to propagate their genes” (VANDERMASSEN, 2011, 733). I propose that my earlier distinction between the *directedness* and *aboutness* of a particular mental episode, along with the considerations on our dynamic ecology and exaptation, can point towards a solution to this problem. The proposed solution goes as follows: The phylogenetic traits of an organism, that is, the aggregate of a species’ typical adaptive characteristics, are responsible for the sorts of things that organism directs itself towards. These adaptive traits then serve to determine ‘default’ valences of an organism as well as ‘default’ behavioural capacities. They will, in some way, dictate what features of the environment come to be salient to the performance of adaptively relevant tasks, as well as the sorts of capacities that afford the possibility of such performances.¹¹ We can then see the phylogenetic development of the species as describing the set of tendencies and capacities that are typical of the species, which therefore also serve as a description of the basic – and determinate – causal relationships between capacities, tendencies and their ‘natural contents’. Consequently, directedness can be described as the content specificity of evolved adaptive capacities and tendencies.¹²

Ontogenetic traits can then be seen as those, which are subject to the dynamic ecology of human history. This means that they are often, but not always, exapted. It also means that, unlike the case in which phylogenetic traits have determinate causal relations to contents, we can see human ontogenetic traits as possessing a series of *semantically indeterminate*¹³ relations to the environment. That is, what an individual is thinking *about*, and what is psychologically relevant or valuable to them, is *not* determined (though it is constrained) by the basic causal relationships between phylogenetic adaptations and their environmental contents. Take, for example, a lustful soldier in Homeric times. While, during the throes of lustful desire, the soldier’s cognitive state can be determinately related to reproductive ends, there are a whole array of indeterminate historical and semantic conditions under which that individual can *meaningfully* think *about* what he is doing. We can then say, in this case, that his phylogenetic and adaptive traits are directed towards

¹¹ These capacities would also be active in instances of exaptation even though they would not be active in the way determined by their evolutionary function.

¹² See Cosmides and Tooby “Conceptual Foundations of Evolutionary Psychology” (2005) and “The Psychological Foundations of Culture” (1992) for further discussions of the relationship between evolutionary psychology, neurological modularity, and content specificity.

¹³ I must thank Gabriel Mograbi for helping me develop this notion.

reproductive ends, despite the fact that this need not be what he is thinking *about*.

In sum, phylogenetic traits come to be the set of *adaptive* characteristics, which are designed by selection to *direct* our cognitive systems towards environmentally relevant contents where the environment is that of the EEA. We can then see the ontogenetic development of a person as resulting in a conglomerate of adaptive and *exapted* capacities where the latter comes to enable one to think *about* contents in ways that are not determined by the *directedness* of one's phylogenetically given adaptive capacities. Again, while any state of lust, hunger, or spatial reasoning directs the cognitive system towards determinate sorts of contents (reproductive, nutritive or spatial) this still leaves the contents that the agent is thinking about as indeterminate. While these phylogenetic capacities can be seen as necessary conditions for *aboutness* they are not sufficient for it. Take for example, the capacity to think about musical scales, imaginary numbers, calculus limits, military strategies and mythological entities. One could identify neurological 'modules', which enable such forms of human cognition; nonetheless, without an understanding of the role of socialization, history, and language, we cannot hope to explain the musician's capacity to identify time signature or the warrior's capacity to recognize an enemy's military strategy. Such capacities necessarily involve the active effects of socialization in enabling us to think *about* things that could not otherwise be cognized. Could somebody be expected to cognize, individuate, or possess as a mental content of, the idea of Pegasus *without* having been introduced into a culture in which one's linguistic and cognitive apparatus comes to be afforded this intentional object? Can the combat techniques of Homeric soldiers be understood as issuing from our phylogenetic and adaptive traits alone? Can the marriage customs, sexual taboos, and political hierarchies of this society be understood as cognitively available without recourse to socialization?

The obvious answer to these questions is 'no'. After all, Gottschall and other evolutionary theorists are aware of the role of socialization in generating human behaviour and thought. But what I wish to tease out is the notion that socialization comes to redefine the operations of our adaptive traits by way of employing them in novel environments for the sake of the performance of tasks, which would not have been behaviourally available to persons in the EEA. The sorts of tasks that Homeric men and women had to perform would have, in many cases, been distinct from those performed by their evolutionary ancestors in

the EEA. Weaving, metallurgy, agriculture, poetry, and political organization are all practices that were common to Homeric peoples but could not conceivably be said to have been parts of the tasks 't' for which adaptation *c* evolved. This then suggests a picture in which *proximate* causes come to be those which a person thinks about whereas *ultimate* causes come to be those which direct one's thoughts and behaviours towards particular sorts of contents in the environment. As such, we cannot see Homeric men as thinking *about* their desire for women as a desire for reproductive success even if this desire is so *directed*. Men think *about* reproductive success in terms, which need not involve the notion of reproductive success at all. All this amounts to saying that socialization has an active role in modifying operations of a person's cognitive systems.

With these considerations in mind, we can now address Gottschall's claim that "honour, political power, and social dominance are proximate routes to the ultimate goal of women" (GOTTSCALL, 2008, 10).

Proximate and Ultimate Causes vs. Proximate and Ultimate Values

The majority of my criticisms have so far focused on interpreting the sort of evolutionary claims made in *The Rape of Troy* and I have said little about the question of Homeric scholarship. Nonetheless, the above considerations should also have consequences for Homeric scholars insofar they provide a means of understanding how Homeric men are simultaneously fighting for the abstract end of poetic immortality as well as the visceral one of reproductive success. In doing so, we can come to better integrate the diverse opinions regarding the ends for which Homeric men wage war and commit violent acts. The distinction between the directedness and aboutness of an intentional state allows us to keep causal impetus separate from psychological motivation. In doing so we can come to understand how to parse the myriad motivations of Homeric men. Gottschall regards 'traditional' Homeric scholars, as those who "have typically had things backwards" by supposing the proximate goals of "honour, political power, and social dominance" to be the ultimate goals to which women stand as proximate routes (GOTTSCALL, 2008, 10).

Nonetheless, the question of which of these should be ultimate and proximate must be seen as relative to a particular level of analysis. Asking which of these should be

regarded as the 'real' ultimate goal shows a failure to understand the complementary character of these different levels. For asking such a question amounts to generating arguments about what these men were *really* motivated to achieve and affirming either option betrays an inadequate understanding of human psychology. If we affirm women as the ultimate goal, in the sense of *the real* goal, then commentators are wrong to "have trusted the words of the warriors themselves" in trying to understand what they were fighting for (GOTTSCALL, 2008, 2). It leads us to the conclusion that these men didn't really know what they were aiming to achieve in war and that they *thought* they were aspiring towards poetic immortality but they were really aiming at reproductive advantage. On the other hand, if women are seen as proximate goals, we are forced to the conclusion that reproductive success is merely a means to achieving poetic immortality, honour, or political power. Both of these positions are deeply unsatisfying and result from an oversimplification of the relevant issues. These two views needn't be mutually exclusive so long as we distinguish questions of what these warriors were directed towards from questions concerning what they were thinking about achieving.

From the perspective of directedness, of the causal relationship between volition or cognition and some environmental feature, we can see women as ultimate goals insofar as they serve as the primary source of reproductive, and therefore biological, value. One could formulate Gottschall's arguments such that women are the ends achieved by successful performances of tasks *t* for which certain male specific psychological mechanisms *c* evolved. On the other hand, when it comes to understanding what these warriors were thinking about, what they actively valued, and how they were meaningfully compelled to perpetuate violence, we must see the goals of honour, poetic immortality, and political power as ultimate insofar as they point towards the sorts of things that would have made life meaningful to a Greek soldier. The fact that they were a culture that wrote about war, involved the gods as they did, and raised their young to relish in this shows that, psychologically, semantically, and culturally speaking, the value of making love to your wife and concubines, succeeding in battle, raising your young, proving your strength, honor, and prestige, are things that are intrinsically related to rendering *reproductive success valuable* from within the perspective of a member of society or the society as whole. Contraception demonstrates that the psychological value of sexual acts lies in much more than their

potential reproductive consequences; it provides us with an example of how our tendency to modify our environment can create corresponding changes in the functional role of some adaptive trait. As such, Hedonic, interpersonal, and normative evaluative standards come to be the primary or ultimate motivators from the perspective of a conscious agent.

Conclusion

Evolutionary accounts of human behaviour pose novel issues for research in nearly any field involved in the investigation of human nature. Conceptually speaking, it has been difficult to understand the manner in which sub-personal evolutionary forces come to influence human psychology, without our awareness, while also not condemning us to biological determinism. Furthermore, a mere acknowledgement of the role of socialization in the development of the human organism does not do enough to address this issue nor the issue of 'nature vs. nurture'. Gottschall's work, and others like it, does an excellent job of showing us *that* we are in some way governed by evolutionary forces but does not do enough to show us *how* this is possible. Of course, Gottschall's work needn't have done this, as it may have not been his aim, nonetheless, I believe that we need such explanations if we are to coherently interpret the sorts of claims he makes in *The Rape of Troy*.

Consequently, I have suggested a story of *how* evolution comes to bear on human behaviour in order to complement the stories explaining *that* it does. I hope to have satisfied the reader in having at least pointed towards a direction by which we might achieve this end. By characterizing human history as a dynamic array of ecological niches, emphasizing that we have an active capacity for ecological modification, and showing this to be responsible for the oft exapted character of our behaviour, I hope to have pointed towards a means of coherently distinguishing 'cultural' determinants of human psychology from 'evolutionary ones'. Moreover, I hope to have demonstrated that we can sustain these distinctions as applicable to different levels of description rather than distinct sorts of natural phenomena or ontological categories.

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