References


Evolutionary ethics and adaptive atheism

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In Evolution Science and Ethics in the Third Millennium (2018), whose key arguments are summarized in the target article above, Cliquet and Avramov offer an exacting and extensive analysis of the ethical and ecological challenges and psychological and political choices ahead for the human species. They bravely tackle a host of touchy issues and, in light of empirical findings and theoretical developments within a wide variety of scientific disciplines, courageously offer their own constructive proposals. Some of the latter (such as those dealing with eugenics and eugenics) will no doubt generate fresh anxiety about genetic and social engineering, while others (such as those dealing with
modernization and hominization) will fuel worries about scientism or elitism. Although these concerns should lead us to be cautious, the authors remind us that we ought to be at least as concerned about ways in which the well-being of future generations could be threatened by our failure to act and our unwillingness to contest maladaptive cognitive and coalitional biases.

In this article, I address some of the touchiest issues raised in the book related to religious and secular ideologies and offer my own comments and constructive proposals in response to three of the “discussion points” that the authors lay out in their target article. Each of these points relates explicitly to the potential roles of religion, naturalism or secularism in responding to the global challenges facing humankind and constructing an ethics grounded in evolutionary science. Along the way, I will explain where and why I agree – or disagree – with the authors’ own discussion of these points.

In their book, Cliquet and Avramov (2018) operationalize religion as involving “the belief in a supernatural agent or power that created the universe, explains its existence and meaning, and often imposes a moral code according to which humans should behave” (p. 89). Although “creator” gods are not central within all religions, especially in small-scale societies, the authors’ definitional emphasis on beliefs in and behaviors guided by putative supernatural agents and authorities is consistent with the general consensus among scholars working across disciplines in the scientific study of religion (Atran, 2002; Boyer, 2002; Shults, 2018a; Teehan, 2010; Tremlin, 2010). In the target article, they invite commentators to respond to their suggestion that religion is no longer adaptive in our contemporary environment.

Discussion point 4: Spirituality/religiosity is part of the human biological heritage that, together with its cultural expressions in the hunter-gatherer and agrarian stages of human history, had adaptive functions in those stages. However, many present cultural remnants of those stages are no longer well adapted to the exigencies of modernity. They are insufficiently robust to further develop the potential of the human species to reach higher levels of cultural development and biological evolution. (Cliquet and Avramov 2020, p. 3)

The authors are even more explicit about the maladaptiveness of religion in their book. After reviewing wide swaths of the relevant scientific literature across disciplines, they conclude that “organized religions and religiosity based on beliefs and in-group morality transmitted through religious institutions are no longer instruments of human survival. They ceased to be adaptive to human survival and have become maladaptive instruments” (2018, p. 134). As Cliquet and Avramov make clear throughout their book, it is the supernatural (non-naturalist) aspects of religious beliefs and behaviors that are problematic in our contemporary context. Why? Because such pre-scientific beliefs and in-group behaviors hinder modernization and enhanced hominization, which they argue are necessary for responding to the ethical and ecological challenges of the third millennium. As they note in the target article, “there is not much time left to resolve these urgent problems if we want to avoid further damage” (p. 17).

Here I am in complete agreement with the authors. Their arguments about the deleterious consequences of the superstitious beliefs and segregative behaviors promoted by religion are backed by empirical findings from a wide array of disciplines, which I have also surveyed in other contexts (Shults, 2014, 2018a). We are indeed running out of time to address the global challenges of the Anthropocene such as extreme climate change, escalating cultural conflict, and excessive consumer capitalism (Shults, 2015). The acceleration of these three latter crises has had a more profound negative impact in the Global South, where religion plays a powerful role in decreasing openness to scientific solutions to sustainable development and in increasing social conflict and economic inequality.

As Rumy Hasan argues in Religion and Development in the Global South (2017), belief in doctrines related to putatively supernatural agents is necessarily in tension with cognitive thinking for the simple reason that faith obviates the need for evidence and to a significant extent for rational thinking; hence, cognitive faculties are diminished. Criticism, curiosity, critiquing, hypothesizing, theorizing, experimentation and the search for evidence all appear to be suppressed or discouraged. To put it another way, they are not required or desired when truth is thought to emanate from holy texts. (2017, p. 198)
The evidence discussed by Hasan suggests that minds that are not secularized “are infused with supernatural and irrational thinking, and these powerfully militate against the dynamics of growth, development and the uplifting of people” (2017, p. 211).

Here it is important not to avoid the touchy issue of the negative correlation between religion and intelligence, which has been well-documented in the scientific literature (Dutton & Van der Linden, 2017; Ganzach & Gotlibovski, 2013; Zuckerman et al., 2013). Although Cliquet and Avramov focus heavily on the implications of religiosity for fertility and the carrying capacity of the Earth, they do not address the effect that high fertility among the religious could have on the intelligence of the human species at the population level. As Ellis et al. point out, both religiosity and intelligence are substantially influenced by genetics and “persons with lower IQs and who are most religious are reproducing at substantially higher rates than those who are least religious,” which leads them to predict that as religiosity increases “average intelligence will decline” (2017, pp. 3–4). This is problematic because adapting to current ecological challenges calls for reasoning in “logical empirically verifiable terms” about complex natural phenomena without “invoking supernatural ‘shortcuts’,” which in turn “requires genes for high intelligence and is facilitated by genes for low religiosity” (p. 15).

Like Cliquet and Avramov, Hasan also points to the positive relationship between widespread religious behaviors motivated or justified by allegedly supernatural authorities and socio-economic dysfunction, a correlation that has also been well-attested in the literature (Paul, 2009; Zuckerman, 2010). Hasan provides cross-cultural evidence clearly showing that “as countries develop, the importance of religion to the population-at-large declines – to the point that a significant percentage self-proclaim to be non-believers and for a rising majority, religion is a declining or unimportant part of their life” (p. 207). He argues that these findings compel us to acknowledge that if the countries of the Global South are to become developed, they

must downplay the role of religion in people’s lives and institutions writ large and move towards secularizing culture and society. This is not only essential for the cognitive development of children but is also a rational approach to the tasks necessary for economic development and modernization. (p. 210)

Correlation is not causation. True, but a host of other scientific studies (e.g., psychological experiments involving priming and other manipulations, structural equation models, and agent-based computer models) have plausibly established reciprocal causal connections among variables related to religious beliefs and behaviors and variables related to problematic traits such as tendencies toward mistaken teleological judgments, ontological confusion, risk aversion, existential insecurity, prejudice, racism and sexism. Especially under stressful or emotionally arousing conditions, thinking about supernatural agents can activate segregative behaviors and engaging in religious practices can activate superstitious beliefs. In other words, religious credulity biases that foster mistaken beliefs about human-like supernatural forces (whether animal-spirits, ancestor-ghosts or deities like Xihu-tecuhtli, Yahweh or Zeus) and religious conformity biases that foster antagonistic attitudes and behaviors toward out-group members are mutually reinforcing. For a review and theoretical integration of much of the literature that supports these claims see (Shults, 2018a).

Is religion maladaptive today? Yes, if by religion we mean beliefs and behaviors related to supernatural agents and authorities, and if by maladaptive we mean not conducive to the mid- to long-term survival or flourishing of the human species. The authors of the target article are correct in their assertion that evidence from across scientific disciplines suggests that religious traits hinder modernization and are increasingly maladaptive for responding to the ethical and ecological challenges of our contemporary global environment.

Religion is a big part of the problem but is “secularism” the solution? Here too, a great deal depends on how we define and operationalize our terms. Cliquet and Avramov find most major secular ideologies (such as liberalism, socialism, feminism and nationalism) to be too fragmented, too short-sighted, and too focused on the macro-level. They are more optimistic about humanism and ecologism than other secular ideologies, but all of the latter are found wanting for the task of
constructing a universal ethics based on evolutionary science. This is the concern behind the fourth issue in relation to which they invite readers into conversation.

Discussion point 5: The current fragmented and mostly short-term perspective of modern secular ideologies are no valuable alternative to the traditional religions as all encompassing, cohesive and integrated worldviews, with a set of guiding values and norms. (Clignet and Avramov 2020, p. 4)

In their book, the authors more clearly indicate that what they have in mind is a comprehensive “universal morality” or “universal ethics” to guide the whole human species into the future (2018, p. 185). At this point, some will no doubt express concern about the possibility – or even desirability – of such ethical universality. It is hard to imagine a non-coercive way to achieve this goal. Moreover, the goal itself seems to presuppose – or at least leave room for – some form of moral realism or a transcendent ground for human values, which are tied to the sort of religious notions that have led us into the ethical impasses that constrain most contemporary moral philosophical discourse (Marks, 2016).

Others will resist the notion that religious ideologies can actually provide comprehensive, coherent or integrated worldviews. I have yet to come across one that even comes close to meeting these criteria. Religious philosophers and professional theologians work hard to articulate consistent and intelligible versions of their in-group’s religious worldview, but insofar as such worldviews are based on the putative revelation of counter-intuitive, ontologically confused intentional forces that are allegedly accessible through ritual manipulations conducted and controlled by in-group elites, the “set of guiding values and norms” that actually operates within the lived religion of most laypeople is primarily oriented toward maintaining credulity about the existence and relevance of the in-group’s supernatural agents and conformity to the idiosyncratic social prescriptions and proscriptions of the in-group’s supernatural authorities.

In this context, however, I would like to focus on the way in which Cliquet and Avramov frame the issue of the relationship between “religious” and “secular” ideologies, and the relationship of both to “naturalism.” Here I am only in partial agreement with the authors, but I believe the difference between us is mostly rhetorical. Nevertheless, as will become clear when we examine Discussion point 8 below, formal differences in framing and operationalization are important because they can lead to material differences in strategies for addressing the challenges they identify.

Although the authors do not explicitly define “naturalism,” they are clearly fans. They argue that every scientific discovery, in a wide variety of domains from astronomy to sociobiology, has confirmed or even strengthened the scientific approaches and refutes the religious belief systems. The common feature of the findings in those scientific disciplines is that the supernatural, immaterial or spiritual approaches and explanations of religions have been refuted and are replaced by natural and material approaches and explanations, even for behavioral phenomena such as altruism, reciprocity, sociality, love, spirituality, and religiosity. (2018, pp. 143–144; emphases added)

For Cliquet and Avramov, (naturalistic) science and (supernaturalistic) religion are clearly at odds.

However, the opposition between religion and “secularism” is not as clear. On the one hand, they describe secularization as “the societal transformation from a situation in which religious beliefs, values, norms and institutions dominate within a context” to one “in which non-religious convictions, values and norms, mainly based on autonomous human reason, prevail and secular institutions rule” (2018, p. 156). On the other hand, they call for a “move in which spiritual religion and secular humanism could converge” (2018, p. 406), that is, for a convergent dialogue not only among “secular ideologies,” such as those listed above, but also between the latter and “religious ideologies.” They do not list the latter, but they do seem to privilege the major western monotheistic religions; it is not clear how or whether the other fractured and fracturing supernatural belief systems among the thousands of extant and emerging religious movements will get a place at the table.

This way of framing the issue leads them to propose a strategy that they summarize concisely in the last discussion point offered in the target article.
Discussion point 8: A scientific approach, especially an evolutionary approach, to ethical questions might help to bring together religious and secular ideologies to design a new global ethic that not only deals with the urgent challenges humankind is currently facing, but also focuses on a longer-term future. (Cliquet and Avramov 2020, p. 18)

Keep in mind that this strategy is oriented toward a specific goal: designing a new, scientifically grounded global ethic that funds the phylogenetic enhancement of hominization, the furtherance of modernization, and ecological sustainability (2018, p. 396).

But, given their operationalization of “religion” as belief in and behavior guided by putative supernatural agents and authorities, which is obviously opposed to the naturalistic explanations of evolutionary (and every other) science, why would they expect their dialogue with “secular” ideologies to lead toward convergence? In their book they argue that “atheism,” which they describe as the absence of theism or “a way of conceiving the world and desiring to change the world on the bases on autonomous reasoning, and making use of acquired scientific knowledge instead of relying on the authority of supernatural agents,” actually “lies at the basis of many if not all of the secular ideologies” (2018, pp. 158–159; emphases added). If so, then what kind of convergence could one expect from the dialogue they propose?

I want to be clear that I acknowledge the importance of highlighting the deep continuities that can be traced across time and space in the projects of human civilization, including the continuities between ancient and contemporary religions and the secularistic and naturalistic worldviews that are replacing them in contexts where the population is existentially secure, well-educated, pluralistic, and allowed freedom of expression (Shults, 2018b; Wildman et al. under review). I also want to be clear that I am not downplaying the importance of open dialogue as a valuable and even necessary component in the ongoing construction of a (pluralistic) global ethic. However, I am downplaying the likelihood – no, given the authors’ use of terms, I am willing to deny the possibility – that religious ideologies could contribute qua “religious” ideologies to the sort of new global ethic that Cliquet and Avramov desire.

Of course, there are many non-religious elements entangled within religious ideologies and traditions that are not necessarily associated with or contingent upon supernatural beliefs and behaviors; for example, traditional wisdom about the structure and dynamics of the human search for meaning, healthy ways of living together in community, practices for facilitating and managing intense neurobiological experiences, and the value of feeling awe at the complexity of the universe. But the point is that these are non-religious, that is, they are not unique to coalitions whose cohesion depends on shared imaginative engagement with axiologically relevant supernatural agents. I agree with Cliquet and Avramov that religion is maladaptive and that secular ideologies need a lot of work. And I am all for dialogue. But, given the urgency of the challenges identified by the authors of the target article, I believe that there are contexts in which we need to emphasize even more strongly the way in the reciprocally reinforcing dynamics of naturalism and secularism are diametrically opposed to religion (in the sense the term is being used here).

In other words, we need to straightforwardly have “the talk” about where gods come from and the consequences of continuing to nurture them through in-group rituals that intensify out-group antagonism and superstitious thinking. The wealth of research reviewed and integrated in Evolution Science and Ethics in the Third Millennium contributes to this task. I have proposed a slightly different way of framing the conversation, one which I believe is consonant with the overall argument of that book and perhaps even more conducive for achieving the overall goal it promotes. The general claim of theogonic reproduction theory (TRT) is that “gods” (supernatural agent conceptions) are born in human minds as a result of evolved content biases that activate inferences about hidden human-like forms and borne in human cultures as a result of evolved context biases that activate preferences for distinctive in-group norms.

As indicated above, research also suggests that these theogonic (god-bearing) biases are reciprocally reinforcing, especially when people are confronted with ambiguous or frightening phenomena. Reliance on supernatural concepts to explain confusing phenomena amplifies compliance with
supernaturally authorized in-group norms and *vice versa*. Elsewhere I have summarized, analyzed and evaluated much of the empirical evidence and scientific literature upon which this scholarly consensus is based (Shults, 2014, 2015, 2018a, 2019; Shults, Gore, Lemos et al., 2018a).

This can be clarified in relation to the conceptual grid portrayed in Figure 1, which is intended as a heuristic framework for discussing the cognitive and coalitional mechanisms that engender (or energize) beliefs and behaviors related to supernatural agents and authorities. Think of the horizontal line as representing a continuum on which to indicate the extent to which a person tends to infer that some natural phenomena (especially ambiguous or anxiogenic phenomena) are the result of human-like supernatural forces (or “gods” in the general sense). And think of the vertical line as representing a continuum on which to indicate the extent to which an individual tends to prefer the supernaturally authorized norms of the religious coalition with which he or she primarily identifies as the basis for inscribing the social sphere.

Those who are anthropomorphically promiscuous and sociographically prudish (lower left quadrant of Figure 1) will somewhat automatically rely on appeals to supernatural causes when explaining confusing events and comply with the supernatural conventions of their in-group when organizing the social field. From the perspective of scientific disciplines such as cognitive science, evolutionary psychology and cultural anthropology, “religion” can be understood as an emergent property (or set of capacities and tendencies) of assemblages of these two types of evolved biases (which, of course, must be further fractionated within the relevant disciplines). In other words, religiosity – as operationalized by many scientists within these fields, including Cliquet and Avramov – is the outcome of the confluence of these reciprocally reinforcing content and context biases.

The integration of these religious biases may well have been adaptive in the early ancestral environment, but we no longer live in the late Pleistocene. We live in the early Anthropocene and, as Cliquet and Avramov point out, now face a vastly different set of ecological challenges. Like racist, sexist, and classist biases, *theist* biases may have helped hold together increasingly complex human societies over several millennia, but today the attitudes and actions they foster have become maladaptive. Any successful strategy for adapting to our current, rapidly changing environment will need to include the widespread promotion of the capacity to contest such biases. In other words, it will require energetic efforts that enhance and support the integration of the god-dissolving (theolytic) mechanisms I call anthropomorphic prudery and sociographic promiscuity (upper right quadrant of Figure 1).

![Figure 1](image-url) **Figure 1.** The integration of theogonic mechanisms (lower left) and theolytic mechanisms (upper right).
Anthropomorphically prudish individuals resist the temptation to grab at supernatural explanations when confronted with ambiguous phenomena. Some are naturally predisposed toward such incredulity while others are trained to think more naturalistically through formal scientific and humanistic education. For a growing number of people, it is no longer necessary or helpful to appeal to ghosts, goblins or God when trying to make sense of the world. Sociographically promiscuous individuals are more open to social intercourse with members of out-groups about the most adequate norms for structuring a pluralistic social field. Some have personality factors such as openness (which is negatively correlated with religiosity) which incline them in this direction, while for others learning how to moderate anxiety about cultural others is facilitated by the contextual conditions of secularizing societies. For a growing number of people, it is no longer necessary or helpful to appeal to putative divine revelations when trying to act sensibly in society.

The good news is that sociographic promiscuity and anthropomorphic prudery are also reciprocally intensifying. This is perhaps most obvious in contexts such as those found in Scandinavian countries, among the least religious in the world, in which people enjoy high levels of existential security, strong and stable governments with social safety nets, and they no longer witness passionate displays of religiosity in the public sphere. These factors were likely mutually reinforcing; increases in existential security reduced motivations to attend religious services, in turn causing further declines of religious belief, leading to a cascade of irreligion. Furthermore, these societies have gradually and successfully replaced religion with effective secular institutions that encourage cooperation and enjoy very high levels of science education, which further encourages and reinforces analytic thinking that fosters religious skepticism. (Norenzayan & Gervais, 2013, p. 24; emphases added)

For additional evidence of the mutual intensification of naturalism and secularism, and other factors that promote and enhance the interaction between variables related to anthropomorphic prudery and sociographic promiscuity, see (Shults, 2018a).

Is atheism adaptive? Yes, if by adaptive we mean beneficial for the survival and enhancement of the human species in the Anthropocene and if by atheism we mean the tendency to make sense of the world and act sensibly within society without appealing to supernatural agents and authorities. The promotion of atheistic adaptive strategies is crucial for responding to the challenges identified by Cliquet and Avramov, and so we should be encouraged by the growing rate at which they are being adopted across the globe (Gervais & Najle, 2018; Twenge et al., 2015; Voas & Chaves, 2016; Zuckerman, 2007). Insofar as regularly encountering the idiosyncratic, non-falsifiable, empirically intractable, and prejudice promoting supernatural beliefs and behaviors of others can weaken the grip of one’s own religious biases, dialogue certainly has played and will continue to play an important role in this adaptive process. In my view, “prebunking” and other immunization strategies are more likely to be successful than traditional “debunking” strategies which all too easily activate religious worldview defense mechanisms and can even make things worse (Shults, in press).

However, if the goal is contributing to our understanding of the complex adaptive social systems in which we find ourselves and identifying the conditions under which – and the mechanisms by which – we can find our way to a sustainable future, it is also important to take advantage of other, more powerful analytic and forecasting tools at our disposal. For example, the causes and consequences of the increase or decrease of religiosity within a population can be illuminated by agent-based computational models, which are able to simulate the emergence of phenomena such as secularization (Gore et al., 2018) and mutual escalating religious violence (Shults, Gore, Wildman, et al., 2018b) within “artificial societies,” and trace the role played by particular micro-, meso-, and macro-level variables in these socio-ecological systems.

Computational modeling can also contribute to the broader and bolder task which Cliquet and Avramov encourage us to tackle: intentionally shaping the next major shift in the civilizational form of human societies (Shults & Wildman, 2019). System-dynamics models with computational architectures informed by empirical findings and theoretical developments across a variety of disciplines have been able to simulate the transitions from hunter-gathering to sedentary-agricultural social forms (Shults & Wildman, 2018) and from early archaic states to the large-scale civilizations
that emerged during the Axial Age in east, south and west Asia (Shults, Wildman, Lane, et al., 2018b). Spoiler alert: although ideology did play a role in these shifts, it was by no means as dominant a factor as many philosophers and theologians like to think. Simulation experiments on a computational model of the civilizational transformation in which we now find ourselves – from supernatural to naturalist worldviews – suggest that promoting existential security, pluralism, and freedom of expression, as well as education, will be required for the successful completion of such a transition (Wildman et al. under review).

I agree with Cliquet and Avramov that evolution science can play a key role in helping human-kind face the societal challenges and ethical choices of the third millennium, and I applaud their willingness to take on such a massive (and massively important) task. In this article, I have outlined another way of operationalizing religion, naturalism, and secularism within a conceptual framework that I believe complements their efforts by even more explicitly promoting an adaptive atheism.

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**Needed: an ethics and ideology for spaceship Earth**

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**1. Introduction**

*Homo sapiens* is the extra-somatic species, or the cultural species *par excellence*, as well as a highly social species. Naturally, this is no coincidence: our remarkable success as a cultural species is highly dependent on our ability to synchronically and diachronically interconnect with and learn from each other (Henrich, 2016). Hence the huge importance of social practices, institutions, ideologies and ethical rules. Now that humanity is increasingly acquiring the characteristics of a global village and is also increasingly being confronted with the dire, global repercussions of the enormous exploitative pressure it exerts on the Earth’s atmo-, hydro-, and biosphere, it is maybe more urgent than ever to develop a well-thought-out ideological and ethical framework for that village. *Evolution, Science and Ethics in the Third Millennium* (2018) addresses this huge challenge.

As a philosopher and historian of the life sciences, my modest contribution to this ambitious and erudite endeavor is threefold. First of all, I will argue that *Evolution, Science and Ethics in the Third Millennium* (2018) is a synthetic work of unique scope in that it elaborates a liberal-evolutionary humanism that encompasses a strong and evolutionarily-based social ethics (section 2).