

The Fallacy of Directionality: A Reply to Stephen Pope.

By Glenn Lyvers

I. Introduction

It can be argued that evolution is a purposeful process directed toward producing more complex creatures. If this were true, then it may easily be argued that God is the creator of the universe, and the universe exists for mankind. Indeed, Stephen Pope employs this argument to support his claims regarding both the origin of human morality and the divine causation of mankind (creationism).

I will demonstrate that Pope's conclusion regarding "evolutionary directionality" is false. To do this I will begin by defining "directionality". I will then introduce the objections against directionality in evolution made by Gould, and Pope's reply. I will introduce Morris's views which appose Gould and then further discuss how Pope's reply to Gould fails to overturn Gould's objections. I will demonstrate why Morris fails to overturn Gould's objections. I will then summarize why it is that directionality in evolution has failed to be proven by Pope. I conclude that because he relies on directionality in evolution as a foundation for his greater claims, and because he has failed to support his directionality in evolution claims, Pope's overall conclusions are unsound.

II. Why is this important?

Evolutionary directionality is crucial to Pope's divination claims. Evolutionary psychologists assert that human nature is nothing more than a confluence of various fitness enhancing cognitive modules. These cognitive abilities are adaptive traits which allow humans to learn and socialize. Specifically, they serve to explain both human knowledge acquisition and behavior. Wuketits supports Bernard Williams' claim regarding evolutionary epistemology by noting that the first postulate must be "All organisms are equipped with a system of innate dispositions: no individual living system is initially...*tabula rasa*" (5). For this reason, what makes humans different is not a matter of kind but of degree.

Christian ethicists disagree with the evolutionary psychologist's account above. They hold that "human nature" is not different from other creatures by degree, but wholly different in kind. The justification for this thesis is that humans exist in what Pope calls a state of "disembodied dualism" – possessing both a body and a disembodied soul. Due to this unique dualistic state, evolutionary history makes no difference when considering the origin of human nature because humans are considered to be wholly different in kind due to their immutable souls. Pope John Paul II explained this position in a, now famous, speech to the Pontifical Academy of Sciences on October 22, 1996. At first he appears to align the body and soul, but then by way of Pius XII he makes it clear that because humans possess a soul which cannot originate from matter, we are different in kind from other creatures.

It is by virtue of his spiritual soul that the whole person possesses such a dignity even in his body. Pius XII stressed this essential point: If the human body take[s] its origin from pre-existent living matter, the spiritual soul is immediately created by God ("*animas enim a Deo immediate creari catholica fides nos retinere iubet*"; "*Humani Generis*," 36). Consequently, theories of evolution which, in accordance with the philosophies inspiring them, consider the spirit as emerging from the forces of living matter or as a mere epiphenomenon of this matter, are incompatible with the truth about man (Pope John Paul II). On this view, only through the interaction of the divine do humans possess an efficacious immutable soul.

The importance of directionality in evolution is crucial as Pope tries to reconcile his Christian framework with the views of evolutionary psychology. He asserts that human nature is the result of evolution and is comprised of a set of human emergent capacities – cognitive, emotional and social capacities (129). In Ian Barbour's chapter regarding "Top-Down Causality," Barbour writes, "Living organisms exhibit a many-leveled hierarchy of systems and subsystems... The brain is hierarchically organized" (20). These hierarchies of mental

systems and sub-systems transcend that which is needed for evolutionary fitness. Barbour asks, "If evolution is survival of the fittest, how can we explain altruistic behavior, in which an animal jeopardizes its own survival?... Social insects, such as ants, will sacrifice themselves in order to save the colony" (40). Pope, by use of Barbour's definition, holds that human emergent capacities allow mankind to exist in nature and transcend what is needed for evolutionary fitness.

Of all the claims Pope makes, the argument related to directionality is a linchpin argument – one which, if refuted successfully, will undermine Pope's conclusions about mankind's divine purposeful causation. Indeed, Pope himself concedes this, "If evolution is not part of a purposeful world, Christian convictions are false and Christian ethics is an exercise in futility and self-deception" (111). Directionality in evolution is important, both because divine creation claims are being supported by directionality, and because it is being infused into the serious ongoing discourse about the origins of human morality.

III. Evolutionary directionality:

Directionality in evolution, as Pope uses the term, is a purposeful ordered direction at work within the mechanism of evolution. Pope asserts that "in the course of evolution lower levels of order give rise to higher levels of emergent complexity" (112). In this way, according to Pope, there exists an inherent directionality within the mechanism of evolution, that of a tendency toward higher complexity. He states that, "Nature as a whole is organized in such a way as to produce more and more complexity and higher and higher capacities for responsiveness, intelligence, and consciousness" (112). The overall result is mankind, with the unique ability to transcend the natural world through emergent complexity "in acts of knowing and loving God and neighbor" (31). Pope refers to evolution as an "intelligible process" which supports his greater claim that "God is the cause of the existence of the world, and the cause of its basic structures, patterns, and law-like regularities (90). Pope thereby asserts that "Christian[s]... can thus understand God as working in and through evolutionary processes to create, sustain, and guide all of creation, including human creatures" (110).

III-A The importance of moving beyond the obvious reply to Pope.

Even if one were to concede that directionality toward greater complexity does exist in the mechanical processes of evolution, it is not the case that one would be forced to concede divine causation must be the reason for it. Such conclusions require reasoning which does not make the illegitimate move from rational thought to "divine thinking." Granting directionality would not necessarily grant Pope's greater claims of divine purposeful causation. Such claims would still be in doubt because they would lack sufficient justification to necessitate God as the only explanation for a patterned mechanism within evolution.

IV. Objections as noted by Pope

A. Gould's reply to Pope

Gould advances his first argument, that "many traits of organisms happen to be what they are because of the 'luck of the draw'" (112). Accordingly, because evolution is closely associated with such events, many individual traits have little or nothing to do with predictable adaptively. In Gould's view, "evolution is best envisioned not as a steadily constructed ladder moving from lower to higher, but as an oddly shaped 'bush.' And of the three coexisting limbs of the 'human bush,' we alone continue to exist (112). Pope points to the work Gould performed excavating the Burgess Shale sediment in the Canadian Rockies. In Gould's, *Wonderful Life*, he asserts, The major argument of this book holds that contingency is immeasurably enhanced by the primary insight won from the Burgess Shale—that current patterns were not slowly evolved by continuous proliferation and advance, but set by a pronounced decimation (after rapid initial diversification of anatomical designs), probably accomplished with a strong, perhaps controlling, component of lottery (Gould p.301).

Pope explains, "Gould emphasized the fact that the survival of one lineage, rather than another was a matter of contingent circumstances" (113). Pope recounts Gould by stating, "Other circumstances might

have eliminated these founders and given rise to others, and everything would have been different for animal species as we know them today" (113). Gould quotes, "Replay the tape a million times from a Burgess beginning and I doubt that anything like homo sapiens would evolve again" (Gould p.189). The central claim is that history could have unfolded in an infinite number of directions, but just happened to unfold in the way it has. The countless contingent events that molded evolution could never occur again—it is simply the purposeless "luck of the draw" that things have turned out the way they have.

Pope asserts that Gould had an agenda which was "long concerned with countering the claim that evolution is 'progressive' or marked by an in-built trend toward greater complexity that would eventually give rise to human beings" (113). To strengthen this position, Gould concedes that during the "lengthy course of evolution, evolution has generated more complex and intelligent species...but measured in terms of simple biomass, simple organisms have been much more dominate" than more complex species (113). This argument by Gould calls into question the standard by which "evolutionary success" is measured, and whether human thoughts about complexity are anthropocentric claims. Gould's primary claim to counter progression is called the "Left Wall" argument. Pope recounts Gould's analogy;

He asked readers to imagine a Saturday night drunk stumbling along a street. The drunk is not walking with any purpose in mind, but every time he stumbles into the wall of the buildings to his left he happens to bounce to his right because he has nowhere else to go. Applied to evolution, Gould's point was that evolution generates more complex organisms because all the niches for the simple organism – "the left wall" of the continuum – are already filled. Nature's fecundity has to go "somewhere" and an increase of complexity is the only avenue left open to the diffusion of nature. The generative capacity, Gould concluded, is no more purposive than the drunk's meandering into the streets after he collides with the buildings on his left (113,114).

Gould asserts, "the question of questions boils down to the placement of the boundary between predictability under invariant law and the multifarious possibilities of historical contingency...we must face the implication squarely—that the origin of Homo sapiens, [are akin to] a tiny twig on an improbable branch of a contingent limb on a fortunate tree" (Gould p.291). Gould's "Left Wall" argument by analogy is joined with Gould's other claims regarding contingency and chance, and anthropocentrism thereby creating a nicely organized series of objections Pope must overcome in order to make legitimate claims about directionality in evolution.

B. Pope's reply to Gould

Pope asserts that Gould's argument "proceeds by something of a sleight of hand. He identifies all forms of 'purpose' with the modern doctrine of progress and then collapses the meaning of 'progress' into biological adaptation" (114). Gould is not acknowledging that "progress" is implied in adaptation.

Pope introduces Dawkins, who argues, "Maladaptive organisms are eliminated, adaptive organisms 'replicate.' In the long run, the most adapted organisms will become successful in the "evolutionary arms race" (115). Pope then acknowledges that Dawkins has made an illegitimate move by overstating claims about progress which assume that successfully adaptive creatures will remain successful over time and shifting environments. The work Dawkins argument does here is to allow Pope to offer a middle ground between Gould, who Pope believes is ignoring progress by putting too much emphasis on contingency, and Dawkins, who is claiming progress while ignoring the contingent cases where the environment changes—adaptive traits may regress into maladaptive traits—"Time and shifting environments can lead to the decline and even the elimination of a species" (115). Pope claims, It seems to me that natural selection operating on random mutations to produce relatively advantaged organisms can be considered a legitimate candidate for the mechanism of directionality. This helps to account for why the emergence of new kinds of complexities is not just the product of increased variation or random diffusion, but rather an intelligible process that generates organisms that are more successful than their competitors because they are better adapted to their

surroundings.

Pope's "middle ground" rests on the idea that although Gould's contingent events exist, evolution itself is a selective process which is not random. Pope quotes Ayala, stating that "evolution is the outcome of the interaction of random and non-random process. There is a 'selective process.'...adaptive combinations constitute, in turn, new levels of organization upon which the mutation (random) plus selection (non-random or directional) process again operates" (115). This position argued by Pope does not assume that complexity is always adaptive, but it does hold that "nature is inherently structured to give rise to emergent complexity" (116).

Pope then makes this claim, "While methodological reductionism ought to be employed to understand as much about our behavior as possible, we need to acknowledge that these emergent capacities allow us to engage in activities and to strive for goals that cannot be explained in exclusively biological terms (116). He then makes it clear that humans are a central part of the evolutionary process and that human nature has been "steadily improving for the last 150,000 years" (116). Pope is careful to note that these improvements are reflected primarily in our cultural evolution and less in our biological evolution. He states: "Whatever moral progress has been accomplished in the course of human history is not the result of a significant shift in gene frequencies, but of developments in moral culture" (116).

V. Addressing Pope's Claims.

I have presented Pope's central claims and arguments by Gould regarding directionality in evolution. Now I will address Pope's claims directly. Pope asserts that Gould's argument "proceeds by something of a sleight of hand. This is simply not the case. In this objection by Pope, a great deal of work is being done very quickly. The reader is told, by implication, that Gould is employing some trickery to support his arguments.

I believe Gould deserves a voice to defend himself in this allegation. To be clear, Gould does not find "purpose" or even a tendency in evolution. In Gould's *Wonderful Life* he notes, "most [evolutionary] possibilities are never realized...biology's most profound insight into human nature, status, and potential lies in the simple phrase, the embodiment of contingency: Homo sapiens is an entity, not a tendency" (320). Gould does not claim "purpose." Indeed, Gould's central claim is that evolution is not a purposeful process. Pope rightly points out that Gould holds the view that "there is nothing particularly adaptive in the fact that we have five rather than four or six digits" (112). It might appear that Pope is pointing out Gould's use of the word "adaptive" in order to make a comparative statement between adaptivity and progress, but this is not the case. This quote comes from Gould's "luck of the draw" argument and it concludes with Gould asserting that the difference between 4, 5 or even 6 digits is "the result of unpredictable and unrepeatable events of history" (112).

Pope fairly represents Gould's quotes prior to making the "sleight of hand" allegation and such a strong claim demands careful explanation. This ethical responsibility is undoubtedly something Pope should take seriously. I find no compelling evidence which supports Pope's claim, and while I concede that my lack of discovery is not proof, when juxtaposed with Gould's distinctively clear claims which appear contrary, it seems evident that Pope's argument in this regard lacks sufficient merit to be credible. Exceptional claims demand exceptional proof. Similarly, Pope asserts that Gould had an agenda which was "long concerned with countering the claim that evolution is progressive" (113). Whether this is the case or not is debatable. I believe Gould would reply to this by saying, "Pope, my only 'agenda' is getting at the truth. There are easier ways than digging my life away in mountains of shale to refute directionality in evolution claims." Gould came to his conclusions after putting his hands in the earth and examining the evidence, and for that act he deserves some measure of respect. One cannot deny that tensions exist between science and religion but it cannot fairly be argued that those who have different views necessarily have an agenda.

Pope's strategy to overcome Gould appears to be sound. However, Pope fails to successfully defeat the left wall argument, and the

contingency argument. Instead, Pope, having the luxury of history to reflect upon, seems to create a plausible idea about how evolution may work, but one which is not based on evidence. Plausibility is not nearly enough to counter Gould's objections to directionality in evolution.

VI. Conclusions.

Pope needed to overcome the luck of the draw argument, and the contingency argument posed by Gould to show directionality in evolution. Pope did successfully weave a story which, if true, would be both interesting and powerful in the discourse between Christian ethics and psychology.

He did not demonstrate from evidence that directionality in evolution exists. Pope, by use of Ayala needed to show that it is not the case that evolution randomly acts in unpredictable patterns. Like the roulette sign offered to desperate gamblers, all Pope managed to do was to show the evidence of the past to the hopeful, but he was unable to directly demonstrate that the randomness of evolution is anything other than random.

Pope's reply to contingency was not sufficient either. The fact remains, life on earth is occasionally wiped out by contingent events. Life which manages to emerge between global catastrophes adapts to the contingent environment at the time. In this sense, the whole earth is a local environment. To assert that there is a divine purposeful causation at work, which uses evolution as a sort of intelligible mechanism in such a contingent process, is absurd both from logic and intuition.

Pope's reply to Gould's left wall argument—that nature's fecundity randomly fills available niches and therefore randomly creates more complex creatures, Gould was not addressed fairly nor adequately. By fairly, I mean Pope's "sleight of hand" accusation which was unsubstantiated. By adequately I mean by way of Dawkins who served very little purpose, other than to introduce Pope's views as somewhat tempered. Pope comments; "It seems to me that natural selection operating on random mutations to produce relatively advantaged organisms can be considered a legitimate candidate for the mechanism of directionality" (115). While interesting, Pope failed to show that "random mutations to produce relatively advantaged organisms" is a tendency whatsoever. There are two problems inherent in this argument, 1) More complexity does not equal better adaptivity (or prolonged success of a species) and 2) a sense of fallacious begging the question exists in Pope's claim. He implies that there is directionality in the way he poses the observation, and then concludes directionality from it. "It seems to me that natural selection operating on random mutations to produce relatively advantaged organisms can be considered a legitimate candidate for the mechanism of directionality"—by using the word "to" Pope has loaded the dice in his observation and then concluded directionality from the roll.

For these reasons, I conclude that Pope has failed to prove directionality in evolution or to overturn Gould's arguments of contingency. Indeed I conclude that Pope himself has employed a sleight of hand to support his arguments both personally and by way of Morris. He explores many interesting subjects that build to his divine causation conclusions, but in the end, the totality of his greater claims are built upon a crumbling foundation of unproven theories, and for that reason, are not supported by the evidence.

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