Natural Selection: A Deselection vs Proselection Analysis

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Evolutionists have been looking through the wrong end of the telescope since Darwin handed it to them front end first!

Les Dethlefsen, Margaret McFall-Nagi and David A. Relman[1] repeated Wilson's[2] repetition of Charles Darwin's[3] error when they quoted Wilson's article, "...individual types with the greatest reproductive success in a population increase in relative abundance..." While I have taken this small part of the quotation out of context, the reader will soon see that doing so does not in any way affect the meaning or interpretation of the assertion for the purpose of the argument presented here. In brief, natural selection is not concerned with promoting the relative abundance of reproductively successful organisms. To believe that a form of favoritism is at work in natural selection, while intuitively satisfying, seriously undermines one's ability to see the real underlying evolutionary dynamics.

In reality, evolution only ever DISFAVORS characteristics that interfere with the organism's reproductive success.

At first blush one may mistakenly read this argument as being equivalent to saying that the statement "The quantity A is greater than the quantity B." is quite different from saying "The quantity B is less than the quantity A." However, while these two assertions are in fact logically equivalent, the assertion that natural selection works by "favoring" certain "individual types" is not logically equivalent to saying that natural selection works by "disfavoring" certain phenotypic characteristics. The two assertions are actually sufficiently different to produce dramatically different predictions and wildly different deductions based on the same objective data.

While I must leave it to the evolutionary biologists to flesh out this argument with the extremely rich array of supportive laboratory and field examples they can no doubt produce from memory alone, I can offer a few supportive arguments and insights.

One well known computer simulation that supposedly demonstrated the process of natural selection, described by Dawkins[4] in his book, *The Blind Watchmaker* (1986) is a good starting point. The simulation produced the target phrase, "Methinks it is like a weasel." from "random" mutations in only 164 trails. This rapid "evolution" process should have alarmed Dr. Dawkins as well as any evolutionary biologist who read Dawkin's book, because the results make extremely clear the fact that the program is not an accurate simulation of evolution. Evolution simply does not happen that fast. So, what is wrong with Dawkins' assumptions? Simply this, Dawkins' simulation focused on "improvement." Each time a trial led to a result that was closer to the ideal, that pattern served as the "parent" for the succeeding trials until a more favorable offspring was produced. In other words, improvement was favored. In order for improvement to be favored, one must know what and where the target is. If one's goal is "perfection" then a selection process favoring improvement makes sense. But, is nature seeking perfection? Is natural selection teleological? I think that even the creationists might balk at this!

We can fix Dawkins' simulation. However, the fix is actually not very simple. In reality, nature does not seek perfection at all. She is much more forgiving than that. Organisms succeed or fail based only on their in-context viability. If an organism is not viable in its current context, or for a variety of possible reasons, can not reproduce, any ***unique*** genes it carries are lost, unless they arise or have arisen by mutation in another individual. I hope the reader won't mind if I seem to be stating the obvious. An individual may carry a lethal gene and therefore not survive. Or, an individual may carry a gene that prevents reproduction. These self-deselective genes are understandably rare, but they do continue to repeatedly arise by simple random mutation. Given this scenario, one must reprogram Dawkins' simulation to deselect any non-viable results of a reproductive trial while allowing all of the rest of the offspring strings to continue to reproduce. How do we decide what features will cause a given result to be non-viable? How does nature do this? Does the environment play a role?

By now the reader is beginning to realize that the deselection perspective offers a very rich array of theoretical variables for investigation. In order to specify deselection features, we need to think about the ecological niche the offspring live in. We need to think about the features of the offspring that make them likely to fail to survive. When this kind of consideration is brought into the simulation frame, we start getting a feel for the liveliness of the real natural-selection process.

Let us think of the goal sentence as a particular organism with particular features. Let us begin by imagining a simpler goal. What if we were talking about a man who is "tall, dark, and handsome." Would a short, dark, handsome man be deselected? What if the tall guy had flat feet? Would a short, blond, ugly man fail completely? What if he was really smart? But, yes, I am cheating. We started off with the tall, dark, handsome guy to simplify things. But, you can see how the specification of the features that make for success, or a goal state does not work. The more complex the organism, the less well such a model works.

So, back to Dawkins' simulation. The sentence has six words. We could say that any offspring that has more than, say, ten words, could not survive. Then, of course, we must define what we mean by "word." Let us say that a word is any string of letters that is bounded by a space at either end. In this simulation it is constructive to think of the words as analogous to organs in an organism. Each organ must meet certain minimal functional criteria in order for the organism to be viable. We could create similar criteria for each word in the offspring. We could specify a maximum and minimum number of letters. We could also specify for each word some lethal letters that would make the organ malfunction. We could build in some allowances as well. For example we could argue that a run of more than one space would simply count as a single space, since spaces merely separate words. When the deselective parameters of the simulation are thus specified, the resulting selection process takes many, many times longer than the 164 trials required for Dawkins' simulation to produce the target result. This should be readily apparent for anyone sitting in a comfortable armchair.

If this simple argument is not sufficient to convince the reader of the need to re-orient our evolutionary thinking, there are many, many more complex examples that may move things along. The complex relationships between parasitism and mutualism discussed in Les Dethlefsen et al's *Nature* article[1] provide a great array of examples. Perhaps the mere existence of parasitism is enough. Consider this simple dynamic. When a parasite infects a host, if the parasite sufficiently weakens its host, both the host and the parasite die. If we think in terms of favored species or races, how does a parasite ever come into the picture? However, from a deselection perspective, if the parasite only kills most of its hosts while some of them survive, those hosts that survive may pass on their ability to withstand the rigors imposed by the parasite to their offspring and/or those parasites that are less demanding of their hosts may likewise pass on their characteristics. While most evolutionary biologists would argue that such parents and offspring are thus favored by natural selection, this is an inaccurate perspective. The fact is that those individuals are simply less likely to die before they reproduce. They are less likely to fail to reproduce. This would also be true for any member of the species that had not come into contact with the parasite. There are any number of ways to avoid deselection. If natural selection were favoring particular solutions to the problem, genetic diversity would swiftly be stifled. Life would swiftly vanish, or not really have begun at all.

On the other hand, we all know that mutualistic relationships are common among even simple organisms. It is easy to see that any organism that benefits from the work of an organelle is an example. Virtually all such mutualisms must have begun in the deep evolutionary past as parasite/host relationships. Natural selection then deleted those combinations that were too burdensome and allowed not just the best few adaptations, but all of those that were not sufficiently burdensome to prevent reproduction, to continue. As time passes, we discover an ever widening range of parasite/host adaptations some of which are much more beneficial than others, yet they all share the common feature of coexistence. Favortistic selection would not promote this kind of diversity. In fact, a deselection perspective encourages us to take a fresh look at organ systems since it is a failure of one or another of these that tends to deselect the organism whether before or after its reproductive activities.

For the sake of the science, especially now that we can read the genome, we need to start looking at this process from the correct end of the telescope. When we do, we may come to the realization that it is more like a kalidascope than a telescope! We will find it very useful to seek deselection features both within an organism's genome or that of the species, and within the dynamism of the various niches that life has occupied during our brief evolutionary history. Exploring the fossil record for extinction-causing deselection events may help us avoid several that seem to be just over our own event horizon.

1. Les Dethlefsen, Margaret McFall-Nagi and David A. Relman. An ecological and evolutionary perspective on human-microbe mutualism and disease. *Nature* **449** 811-819 (2007)
2. Wilson, D. S. Biological communities as functionally organized units. Ecology **78**, 2018-2024 (1997).
3. Darwin, Charles (1859) On the Origin of Species, John Murray, Longon.
4. Dawkins, R., 1986. *The Blind Watchmaker*, Penguin Books, London