

Re: Stephen Wolfram vs. Charles Darwin on natural selection

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- *From:* John Edser <edser@xxxxxxxxxxxxxxxx>
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dkomo <dkomo871@xxxxxxxxxxxx> wrote:–

JE:–

Complexity is equated with an decrease of entropy mostly because increasing complexity can be equated with increasing levels of order.

When discussing complexity it's best to stay as far away from mentioning entropy as possible. When it comes to entropy, hardly anyone knows what they're talking about.

JE:–

Entropy is a concept of physics which can be usefully incorporated into falsifiable theories of biology. Like complexity, entropy remains almost entirely subjective, so indeed, "hardly anyone knows what they're talking about" with regards to either term. This does not render either to be invalid or useless, _as long as both remain a part of a falsifiable theory_.

However, crystals are well ordered while displaying a _higher_ level of entropy compared to the same substance uncrystallized. I think what we may need is a better definition of complexity.

Why? Complexity is like pornography -- you know it when you see it.

JE:–

If it looks like a duck and quacks like a duck it may not be a duck. Verification/non verification remains critically insufficient without refutation within all of the sciences. The problem is, mathematics is a not a science so all it has going for it is verification/non

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verification. In today's regrettably Post Modern world mathematics attempts to replace the sciences (e.g. Hamilton's Rule) rendering subjective concepts of entropy and complexity as (mostly) misused. An example is the recent discussion here about entropy within which some contributors failed to comprehend that it, like complexity, has to be totaled per fertile organism providing an entirely biological concept of entropy "inside" and "outside" of a biologically critical fertile organism boundary. Their error is not dissimilar to the ongoing gene centric proposition of simply ignoring within what fertile organism each gene finds itself (via the deletion of gene fitness epistasis within population genetics).

I have yet to see a good quantitative measure of complexity. I don't think the essence of complexity can be captured quantitatively.

JE:–

I did propose such a definition. Complexity is: the number of _nested subsets of fitness_(proper subsets of fitness) within one Darwinian, falsifiable unit of selection. Because Neo Darwinism was and remains a non falsifiable, mathematical, oversimplified model of refutable Darwinian theory, Neo Darwinists cannot see any difference at all between nested sets of fitness and intersecting sets of fitness. Mathematics cannot distinguish between them because unlike the falsifiable sciences, mathematics reduces nested sets to just intersecting sets. For mathematics not to do so would require a non reversible form of multiplication, i.e. the commutative rule of mathematics would have to go. However, without this rule, mathematics ceases to exist entirely.

JE:_

I would say that complexity could be defined as the number of nested (proper) sets of fitness per Darwinian unit of selection because nested sub parts can only form fitness dependent biological sub entities of single Darwinian units of selection e.g. genes remain fitness dependent on one adult (fertile) form. Nested, i.e. NON reversible sets of fitness (no matter how you define fitness) proposed as a measure of organism complexity must not to be confused with the number of intersecting sets of fitness because these form reversible populations of Darwinian mono–centric (single) units of selection _disallowing populations as valid units of selection_. For example I would hypothesize that diploblasty (a condition of the ovum in which there are two primary germ layers: the ectoderm and endoderm) always remains less complex than triploblasty (the ovum contains three primary germ layers: the ectoderm, mesoderm and endoderm).

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From the Web article:

"To summarize, the lines have been drawn thus: Darwin says that natural selection causes complexity by continuously moving organisms into tighter synergy with their environment, necessitating said complexity.

Wolfram says complexity arises naturally with even the smallest change in the organism's genetic makeup, and that natural selection serves mainly to rein it in by culling the unworkable variations."

JE:–

Natural selection may only appear to reduce complexity e.g. cave fish can be observed to be selected to cover their (now useless) eyes with skin in order to avoid damage and therefore infection while losing most of their body pigmentation. However, other body systems may increase in complexity.

Not in the case of parasites. In general, I don't think complexity is correlated to organismic fitness.

JE:–

I am not saying that it is. I am saying that complexity could be measured as the number of _nested sets of dependent fitness within each independent Darwinian mono-centric unit of selection_.

Because almost all Neo Darwinists remain poly-centric theorists they cannot grasp this simple concept because it remains invisible to them. This is only because of their continued misuse of non falsifiable poly-centric mathematical models of evolutionary theory which dominates their thinking almost entirely. In short, they cannot/refuse, to step outside of their own square.

I would agree with Darwin but would express it differently: natural selection will tend to increase the number of nested levels of selection within each Darwinian mono-centric unit of selection (each adult form). IOW I would propose that it will remain impossible for natural selection to evolve diploblasty from triploblasty (the reverse of what natural history has demonstrated).

JE:–

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Please note that the above presents an empirical test to falsification of the definition of complexity that I have proposed as just one part of mono-centric Darwinian theory (which can be falsified as a theory).

Regards,

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