

Re: Evolution is NOT random

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- *From:* dkomo <dkomo871@xxxxxxxxxxxxx>
 - *Date:* Thu, 15 May 2008 17:37:25 -0400 (EDT)
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r norman wrote:

On Tue, 13 May 2008 14:23:39 -0400 (EDT), dkomo <dkomo871@xxxxxxxxxxxxx> wrote:

So why do people keep discussing it as though it were? Evolution is a deterministic process taking place in a deterministic world. The only "randomness" about it is in our own minds due to our inability to completely understand, track and predict what is going on. This randomness is epistemological and relative, and is not a real feature of nature.

Why do I say this? The only truly random processes in nature are quantum processes and, as far I know, this quantum randomness plays no role in genetic mutations. Mutations are chemical and thermodynamic phenomena taking place in the macroscopic classical world above the quantum realm.

So evolution plays out as part of the Newtonian clockwork universe and statements like these: "If evolution was rerun a trillion times we would get a trillion different results" and similar ideas from Stephen Gould are utter bullshit.

To rerun the "tape of life" you first have to rewind it. The rewind is completely deterministic because the laws of physics are time-reversible. Now when you play the tape forward you get exactly the same results as before. Replay it a trillion times and you get the same result each time.

I think Gould's replaying of the tape of life is a fantasy like the fantasy we create when we ponder what would have happened if Nazi Germany had won WWII or if the South had won the American Civil War. In the real world, evolution of life on earth could have taken only a single path, which is the path that it actually did take. Neither an Intelligent Designer nor true randomness played any part.

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This displays a rather complete naivety about how the real world works. Brownian motion meets whatever criterion of randomness you might choose, as does Johnson (nyquist or thermal) noise in a resistor, neither of which need involve quantum indeterminacy. You can't replay the way bunched pick-up sticks fall. There are ample examples of randomness in living systems and evolutionary systems.

You've listed examples of epistemological randomness. These are probabilistic theories of physical phenomena, but they are probabilistic simply because we can't analytically handle these phenomena easily any other way. So we use statistics.

My question has to do with whether evolution is at its core truly random beyond our statistically based and incomplete theories about it.

Let's forget about the idea of "replay". I used that word because Gould initially brought it up -- "replaying the tape of life". Consider the following thought experiment. Imagine we have a trillion absolutely identical worlds. In each world we focus in on a bunch of pick-up sticks standing on end. The trillion bunches are absolutely identical. At exactly the same instant across all trillion worlds, the pick-up sticks are allowed to fall as they will.

Now, answer the following question. After the pick-up sticks have come to rest in a pile, will the trillion piles be identical? Why or why not?

The way you answer this question will allow us to determine whether you're the one who's naive and doesn't know how the world works, LOL.

Getting back to evolution, now let's imagine a trillion absolutely identical universes each containing an earth teeming with life at some point many millions of years ago. After millions of years of evolution from that exact point in time, will those earths contain identical life organisms or not? *That's* what my original post was trying to get at.

People discuss it as random because it meets all our criteria for random.

I have no problem with epistemological randomness and the theories based on it, as long as people don't confuse those theories with the actual world of nature.

--dkomo@xxxxxxx

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