

Re: Evolution is NOT random

Source: <http://sci.tech--archive.net/Archive/sci.bio.evolution/2008-05/msg00064.html>

- *From:* "Glen M. Sizemore" <gmsizemore2@xxxxxxxxxx>
 - *Date:* Tue, 20 May 2008 13:49:24 -0400 (EDT)
-

"dkomo" <dkomo871@xxxxxxxxxx> wrote in message
[news:g0nk4b\\$1p7q\\$1@xxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:g0nk4b$1p7q$1@xxxxxxxxxxxxxxxxxxxxxxxxxxxx)

r norman wrote:

On Thu, 15 May 2008 17:37:25 -0400 (EDT), dkomo
<dkomo871@xxxxxxxxxx>
wrote:

r norman wrote:

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

Re: Evolution is NOT random

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

Re: Evolution is NOT random

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.

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.

Re: Evolution is NOT random

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.

You are arguing for a Laplacian demon with full knowledge of the position and momentum of all particles in a Newtonian deterministic universe. In your thread of the same subject line in talk.origins I

Re: Evolution is NOT random

describe a series of reasons why the universe is not deterministic in this sense. Yes, it ultimately is based on either quantum randomness in how the wave function is interpreted or else it is based on uncertainty where a particle does not really _have_ a simultaneous position and momentum, not merely that we can't measure it. In a conceptual framework, even were the universe a Newtonian mechanism, I argue that no finite system can have the knowledge of all the particles to compute the system. So the universe may be deterministic to some conceptual infinite power, to a god, but not to any conceivable science.

The universe itself is that finite(?) system. The universe has all the knowledge it needs to compute the next state of its existence for the next Planck time after the given present state.

Humans do, indeed, make calculations and computations, and then they respond in various ways to the products of these activities. The notion, however, that the Universe makes computations and subsequently responds to the products of those "activities" strikes me as utter nonsense.

As Seth Lloyd and some other physicists have pointed out, the universe can be viewed as a vast cosmic computer.

And a sow's ear could be viewed as a silk purse. But that doesn't make it so.

<snip>

.