Re: What's smallest known "self−sufficient" genome

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- *From*: "John Edser" <edser@xxxxxxxxxx>
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"Perplexed in Peoria" jimmenegay@xxxxxxxxxxxxx wrote:−

> JE:−
> What has any of the above got to do with the question? This was: when

one

> cell divides by mitosis on an almost equal basis into two cells how does
> what you wrote enable anybody to decide between:
>
> 1) Just the one original fitness independent parent is now deceased
> reproducing itself 100% efficiently into two fitness independent
> individuals.
>
> 2) The original fitness independent parent remains alive reproducing

just

> the one fitness independent individual.

[snip]

> JE:−
> Then problem must be that you do not appreciate the gravity of the

question

> under discussion. An objective test and not just "hand waving" is

required

> to separate hypothesis 1 from hypothesis 2 (above). What test do you (or
> anybody else here) use to do so?

> I certainly don't understand the gravity of the question. What difference does it make whether you say that the original cell survives with one offspring (so far) or that the original cell ceases to exist with exactly two offspring?

JE:−
In a nutshell the difference here lies in the critical difference between science and mathematics. Only counting the genes produced by mitosis, reducing the Darwinian organism centric theory into a simplified/oversimplified uncorrected gene centric model does not help to solve one of the biggest problems of biology: how did single celled bacteria become transformed into multi−celled organisms?. Arguing that that they "just did" doesn't solve anything. HOW and WHY did they do it? Note that both the HOW and the WHY questions remain separate where both have to be answered scientifically, i.e. not just mathematically.

> In either case, you have two individuals who have the same expected fitness
> from this point forward, but probably won't have exactly the same actual fitness, since one may die while the other survives to reproduce (again?).

JE:−
What you are doing is slowly but surely slipping into the much easier group selective explanation in order to attempt to "answer" this question. A POPULATION of two individuals does remain in both cases but the individuals are simply not the same. Group selection does not care but individual selection does.

> You stipulated that the two cells appear indistinguishable.

JE:−
Yes. The key word is "appear". Because they appear to be so does not mean that this is so. Far from it.

> It is not a question of fact, it is a question of how you choose to describe
> the facts − or, I would say, how you choose to model the facts.

JE:−
As I previously pointed out the problem here is that the DNA/RNA component remains about the same in all cases. IOW no matter how much bigger the parent cell becomes it remain genetically the same as the offspring. What

does this prove? The choice here is between a more complex parent that serially buds offspring while staying alive so that eventually it has to leave behind a dead body (proving it NOT to be 100% efficient) and a much less complex parent which however dies immediately leaving no dead body. This is because it has 100% efficiently turned itself into reproductions of itself. Note that the difference between these two self exclusive choices is primarily somatic and not genetic. IOW the transformation of the more primitive 100% efficient state into the more complex but less efficient budding off state (it must inevitably produce a dead body) is both somatic and genetic, i.e. remains organism centric and not just gene centric.

> Since I
> am
> not an expert on Poisson distributions and the like, I would probably
> choose
> to model it as two new cells. But I am sure the math can be made to work
> in either case.

JE:−
Yes, so what does the correct mathematics without the correct biology prove?

> Maybe you can even make your nested sets model work for
> either case (assuming of course that it works in other cases − I am still
> unconvinced since it has still never been published).

JE:−
The nested set model is simple enough. It has the advantage of being empirically testable (the whole must be > than the sum of its parts). Here the fitness of the offspring remains dependent on the _fertile_ parental level of selection and not independent from it. It requires any parent to remain and be FERTILE while the offspring must initially be INFERTILE. This empirically applies to the more complex but less efficient budding off system but it does not apply to the equally somatic mitotic case because the fertile parent dies producing two infertile forms. Nothing that is fertile remains. The products of an equal mitosis remain infertile. They are required to grow before they can divide themselves (interestingly, compare this to meiosis where this is not necessarily the case).

> Rather than challenging people to provide an experiment that
> distinguishes,
> John, why don't you suggest the experiment, if you think there is one.

> snip<

I have: TDF. Self consistent to what I have argued for over 5 years in sbe, the less efficient but more complex case of unequal budding will be selected over the less complex but more efficient equal mitosis if and only if, the TDF using the unequal budding system increases compared to the TDF of the equal mitotic system which remains maximized at just 2 (within the same population).

Regards,

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