

Re: NS and AaD curves

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- *From:* "John Edser" <edser@xxxxxxxxxx>
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"g" gillawton@xxxxxxxxxxxxxx wrote:

> .. You pass through so many assertions so fast I can't leap them with
> you.

JE:-

I hope the explanations below help.

>> JE:-

>> The genetic background is not just additive it is mostly
multiplicative...

JE:-

Explanation: The fitness of any one gene must include the fitness of ALL the genes in the genetic background where this is EMPIRICALLY more than just a summation.

When the fitness of things are only added together then each thing remains fitness independent so that selection may operate between these things. OTOH when these fitnesses become multiplied to produce a total each thing can lose its fitness independence which disallows selection to operate between them. This is because multiplication employs nested sets (Russian Doll sets) of numbers but addition does not. While $2*3 = 6$ and $4+2 = 6$, i.e. they are indeed mathematically equal but they are not equal EMPIRICALLY. This is because mathematics is only concerned with the most basic set elements. This will be clearer using an example I have used many times before : Selection for books of stamps. If you had to choose between 1 book of 10 stamps (which is 10 stamps nested in 1 book) OR 2 books of 5 stamps (which is 5 stamps nested in two separate books), the first thing you would notice is that the single larger book of stamps is not empirically the same as the two smaller books even if each stamp (the most basic set element) costs the same in each case. This means that if buy the larger book then you have to keep all your stamps in the one place whereas if you purchase the two smaller books then you can keep one book in your wallet and one in your desk, i.e. use them INDEPENDENTLY. Note that as far as just the simple addition for the number of stamps is concerned addition "thinks" of each of ten stamps purchased as within just a jumble where each stamp can be stored in a different place and

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be independently used. The major difference between nested and non nested sets is that only nested sets remain non reversible. Which way around a set of fitness is nested really matters to evolutionary theory because all inner nested sets become fitness dependent on just the one outer nested set.

>> JE:–

> so

>> that almost the same genetic background can have entirely different

>> effects

>> on the expressed phenotypes of the tiny number of genes that can vary.

JE:–

Explanation:

Genetics can only CORRELATE phenotypes (an expressed trait) to genotypes (the gene/genes that code for the expressed trait). Only polypeptides are coded by DNA/RNA where almost always, more than one polypeptide is required to construct one genotype which codes for the one EMPIRICALLY measured phenotype. The selection of any genotype is always indirect and not direct because it is entirely via the selection of the phenotypes it codes for.

A gene can code for more than one phenotype and the same phenotype can be coded for by more than just the one gene. Because the fitness of any phenotype is non additive to other phenotypes it's fitness remains entirely dependent on the fitness of many other hidden genes (epistatic gene fitness) in the same genome, where any one of these hidden genes has the power of a giant lever, i.e. can magnify its effect on the fitness of the gene in question in an entirely disproportionate (non additive) way.

>> Waddington proved this EMPIRICALLY over 50 years ago. Bob's argument is

>> just

>> the oversimplified dogma that underwrites population genetics. What it

>> means

>> is that genetic epistasis (critical non additive associations between

>> genes

>> which is something like the critical association of letters to form

> words)

>> have been deliberately deleted to make things easier for mathematically

>> based models.

JE:–

Population genetics deleted all non additive effects between genes within the same genome simply because these models required it. However EMPIRICALLY, it can be PROVEN that all gene fitness within the same Darwinian organism remain non additive in their fitness association. What this means is that population genetics treats the fitness of each gene as if it was an independent fitness when empirically it can be proven that all of them remain fitness dependent. Using the selection of stamps analogy, population genetics treats 1 book of 10 stamps as just 10 independent stamps and not as just the one independent book of stamps containing 10 DEPENDENTLY selectable stamps, i.e. critical set nesting has been deleted.

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>> JE:–
>>Unfortunately for Bob, *EMPIRICALLY*, every single known
>> gene
>> fitness remains epistatic except of course for genes "in vitro". So who
>> wins: Nature or the test tube?

JE:–

Explanation:

Using my book of stamps analogy: every gene/stamp is entirely dependently selected within one Darwinian body/book of stamps, and NOT independently selected outside of these critical EMPIRICAL structures even if each gene/stamp can be separately selected only using DNA in a test tube/just a jumble of stamps.

Regards,

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