

Re: Sbe Peer Reviewed Papers

Source: <http://sci.tech-archive.net/Archive/sci.bio.evolution/2004-12/0008.html>

From: John Edser (edser_at_tpg.com.au)

Date: 12/06/04

Date: Mon, 6 Dec 2004 05:15:20 +0000 (UTC)

Tim Tyler <tim@tt1lock.org>

> *TT:* –

> *Hamilton phrased his original argument with the question of whether
> an organism could be expected to sacrifice itself to save three brothers
> [1].*

> *He suggested that orgainsms could reasonably be expected to do this.*

JE:–

You have to distinguish between Hamilton's Rule and Haldane's implied Rule. Haldane's pub discussion calculation was:

"I'd sacrifice myself for two siblings or 4 cousins"

only because they all add up to $r = 1$. Of course had Haldane not sacrificed himself he may have raised more than just one offspring to fertile adulthood :–)

Haldane's argument remains inane without his total Darwinian fitness (the total number of fertile forms reproduced by Haldane within one population).

Any of Haldane's genes has a 0.5 chance of ending up in one of his sperm cells. Thus Haldane's sibling has on average half of his own genes (irrespective of what these genes do); his first cousin, 0.25. Haldane is providing help to relatives whereas Hamilton's actor only provides help direct to the reproductives of the same relative. This is one generation removed compared to Haldane so it makes a big difference. In Haldane's case only the IBD relatedness of the relatives is calculated and not the IBD relatedness of their offspring. This makes a mockery of most suppositions using Hamilton's Rule that purports to supply help to $r = 0.5$ related recipients because only your own offspring can be related to you 0.5 using Hamilton's logic. The offspring of your nearest relative (a sibling) in normal sexually reproducing species is 0.25 and not 0.5.

> *TT:* –

- > *Much the same argument suggests that organisms should sacrifice*
- > *themselves to save six aunts.*

JE:–

For Hamilton the relatedness of your mother's or fathers sisters (aunts) offspring must be calculated but for Haldane the relatedness of just an aunt is sufficient. Since aunts are related 0.25 to Hamilton's actor then the relatedness of any of the actors aunts offspring is 0.125. Six of them totals 0.75. Using Hamilton's rule, sacrificing one of your own offspring related 0.5 produces a net gain for the genes but an absolute loss to your own total Darwinian fitness. This being the case AN UNKNOWN DARWINIAN TOTAL FITNESS is being selected to be reduced via just an increase in fitness at Hamilton's supposed independently selectable gene level. Hence the term "selfish geneism" being supposed to cause organism fitness altruism. The fly in Hamilton's ointment is that the gene level is NOT independently selectable. Not a single documented observation within nature of genomic genes having just a polygenetic fitness (a fitness whereby the fitness of a group of genomic genes is just the simple addition of each gene) exists. OTOH the Darwinian maximand fitness (which is just deleted from Hamilton's rule and is equal to c_{max} , the maximum cost to the actor) has been observed, can be refuted but has remained non refuted for over 150 years.

Genes are forced to compete for selection at just the one, same, Darwinian fertile organism level of selection and not at Hamilton's heuristic independently selectable gene level within refutable biological reality.

This being the case, Hamilton's selfish genes are only selectable at the fertile organism level. Therefore any fertile organism centric sacrifice that is heritable reduces the absolute fitness of the genes that code for it forcing these genes to select for their own (and everybody else's) extinction. Hamilton's logic remains biologically absurd.

Any genes that are selected to force a reduction in the TOTAL fitness of their parent organism as Hamilton's hapless actor is, can only produce a relative gain for just an absolute loss, i.e. like Enron accountants Hamilton et al have been playing silly buggers with Darwin's fitness books. A relative gain for an absolute loss is just another absolute loss. Unless the total fitness is put back into the rule Hamilton's logic will continue to send everyone and everything it touches into

intellectual bankruptcy. Hamilton's error constitutes a gross misuse of an over simplified model. This error has become endemic within evolutionary theory as ignorant mathematicians run amok in Darwin's china shop.

> TT:–

- > *However this might not be such a good deal. Indeed it might be*
- > *a very *bad* deal – if the aunts are much past child-bearing age.*
- > *To this extent, the health, fitness and expected reproductive*
- > *success of the altruism recipient needs to be factored in in*
- > *some way.*
- > *How much an organism's fitness is improved by an act that benefits*
- > *them can be considered to be a function of their state of health.*
- > [1] *The Evolution of Altruistic Behaviour, WDH, 1963.*

JE:–

Yes all of them are good points but the most salient points remain:

1) The total fitness of the actor representing a refutable Darwinian maximand fitness has been deleted from the rule via just the modelling over simplification process.

2) No independent genomic gene level of fitness exists.

I might add that any brother is related more than a sister because brothers have one entire X chromosome of genes that his sister cannot not have.

Hamilton's rule contains such a mass of deletions that it bears no relationship to any known biological reality. Thus it remains entirely misused as a stand alone fitness accounting device to measure when organism fitness altruism can evolve within nature. Yet this was and remains, its only use.

Regards,

John Edser
Independent Researcher

PO Box 266
Church Pt
NSW 2105
Australia

edser@tpg.com.au