

Re: Hallowness of Hamilton's Rule

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"Perplexed in Peoria" <jimmenegay@sbcglobal.net> wrote:--

> > JMcG:--

> > [snip]

> > *Does IBD actually measure relatedness*

> > *or is it, as I indicate, a vague abstraction that*

> > *is only peripherally indicative of relatedness?*

> > [snip]

> JM:--

> *Short answer:*

> *What "really" matters is how frequently the recipient of altruism*

> *carries the gene for altruism, as compared to non-recipients. All else,*

> *including the causal reasons why he happens to carry or not carry*

> *the gene,*

> *is irrelevant.*

JE:--

IBD does not measure "how frequently the recipient of altruism carries the gene for altruism" it only measures the probability that ANY parental gene has replicated itself over n _organism_ generations (not gene generations) of that gene. What that gene is or does has no bearing on IBD as long as it is defined as the same gene. A mutated gene restarts IBD all over again. Two identical genes that carry out identical tasks may only have a close to zero IBD relatedness. Hamilton use of IBD was not concerned with what the genes do only from which gene they were replicated because genes within his THEORY were all supposed to be INDEPENDENTLY selectable (they are not within NATURE).

>snip<

> JM:–

> Long answer:

> What we are interested in is under what circumstances a "gene for"

> altruism can increase in frequency in the population. Naively, it

> would seem that this is impossible, since the carrier of the gene

> indulges in altruistic behavior, which is by definition detrimental

> to its fitness, which means that it will pass on fewer copies of the

> gene to the next generation.

JE:–

You have to differentiate between an absolute detrimental fitness (a reduction in the total fitness of the actor) and just a relative detrimental fitness (a reduction within an incomplete fitness total for the actor) or you cannot differentiate between fitness altruism and fitness mutualism.

Unless the total fitness of the actor can be selected to be reduced, no altruism can be proven. Hamilton's Rule, as it stands with the total fitness of the actor deleted, cannot differentiate between altruism and mutualism, because the sign of c remains entirely arbitrary within the rule.

Any reduction of the total fitness of the actor which is heritable, cannot be selected for. If it could be then Darwinian theory stands refuted. Darwinism predicts that any heritable reduction in a parents total fitness must produce extinction as each generation's parents reduces their total fitness on a heritable basis to just nothing at all.

The only naivety that exists is the Neo Darwinian irrational belief that the total fitness of an actor can be selected to be reduced. It cannot be so selected. Because the rule remains 100% relative gene centric Neo Darwinists can only prefer to label positive measures of c as fitness altruistic. Their assumption of same remains entirely unwarranted.

It appears everybody prefers to be seduced by the so called "elegance" of Hamilton's mathematics. Also, it is more politically acceptable to argue that altruism can be selected FOR within nature. The simple truth is that neither "selfishness"

or "altruism" can be selected for within evolutionary theory. Unfortunately this science was and remains, the meat within a politically hot sandwich.

> JM:–

> *However, there is a loophole in this argument. If the carriers of the gene happen to be disproportionately represented among the *recipients* of the altruism, then perhaps they will receive enough fitness benefits to more than compensate for the fitness they lose by *being* altruistic.*

JE:–

No loophole exists.

Recipients of the gene are donating their fitness as fast as they receive it. This being the case, as a heritable total fitness is selected to be reduced, the entire population plummets towards extinction as mad altruists contest each other for an ever diminishing number of sane non altruists. When the entire population becomes altruistic (which is a logical impossibility) all normal reproduction ceases and everybody becomes extinct. Now the whole process can repeat itself.

> JM:–

> *How do we put a metric on this "disproportionate representation"? Clearly, it involves the probability that a recipient carries the gene. It clearly also involves the probability that a random member of the population carries the gene. Now, as it turns out, a fairly simple algebraic combination of these two probabilities is all we need to define a number "r". If the value of "r" (which we will call "relatedness" just to confuse McGinn) happens to be greater than the cost/benefit ratio for the altruism, (i.e. if the representation is disproportionate enough) then the gene will increase in frequency.*

>

> *Now let us look at causation. Why are the carriers of the gene disproportionately represented among the recipients? There are several possibilities:*

> *1. The donors recognize the gene's presence or absence in a potential recipient and only direct their altruism to carriers. This is "green beard altruism". But there are problems with this that I won't go into.*

JE:–

Here is that problem:

$$r^{eb} > c$$

Dawkins green beard nonsense fails because the lineal gains are exceeded by geometric costs.

> JM:–

- > 2. *The donors recognize altruistic behavior and reward it by being altruistic*
- > *to other altruists. This is "reciprocal altruism" – it is best studied within a game–theoretical framework.*

JE:–

This logic is exactly the same as organism fitness mutualism where any mutualism is the nemesis of any altruism within Hamilton's Rule. The renaming of mutualism to becomes so called "reciprocal altruism" only constitutes a desperate effort by the political left to maintain altruism within nature. The term is just a self contradiction unless what is being exchanged only constitutes a total reduction in parental fitness. Of course, in this hopeless situation, both are selected to "help" each other commit evolutionary suicide.

> JM:–

- > 3. *The donors direct the altruism disproportionately to their close relatives.*
- > *There are several ways this might happen – they might actually recognize their relatives, or they might scatter their benevolence indiscriminately but just happen to "hit" their relatives more frequently because their immediate neighborhood happens to contain a lot of their relatives. In either case this is "kin selection".*

JE:–

It suffers from the same fatal disease as Dawkins' Green Beard pantomime:

$$r^{eb} > c$$

> JM:–

- > *snip*
- > *Hamilton's 1964 paper focused on the IBD version of relatedness. His 1970 paper rederived " $r > c$ " using the "disproportionate representation" version of relatedness.*
- > *Grafen's paper, like most modern treatments, takes the "disproportionate representation" version as the basic one, but also shows how IBD yields essentially the same results.*
- > *For the algebraic details in support of the above, and for the*

- > *details about*
- > *the assumptions and approximations, CONSULT A TEXTBOOK!!!!*
- > *However, if you insist that "relatedness" has to refer only to*
- > *the probability*
- > *of having something in common, and not to a *disproportionate* probability*
- > *(relative to the rest of the population), then you are going to*
- > *continue to*
- > *fail to understand Hamilton's rule.*

JE:–

Hamilton's THEORY (from which Hamilton's over simplified model was derived) assumes that an INDEPENDENT gene level of selection exists within nature. It doesn't. Not one single independent genomic gene selection event has ever been documented within nature. Hamilton et al are plying their heuristic model as some sort of competitive theory. It is no such thing. For Hamilton's independent gene level of selection to exist gene fitness epistasis is required to be deleted. If it remains included then all genomic genes remain DEPENDENTLY selected at Darwin's fertile organism level of selection prohibiting the evolution of organism fitness altruism. If Hamilton is correct then Darwin is wrong and vice versa. Both cannot be correct because one is the anti-thesis of the other.

> JM:–

- > *Relatedness, as used here, requires more than simply having something in*
- > *common. You have something in common that a large piece of the general*
- > *population does NOT have. Relatedness can only be defined within the*
- > *context of a population. And that adds some complexity to the concept.*

JE:–

When in doubt always employ the "open sesame" of group selection. It is guaranteed to cure all ills. Hamilton's rule was supposed to replace group selection (of course it did not do so because rb constituted a group of Darwinian competitive fertile forms).

> JM:–

- > *You may have noticed that simplified derivations of Hamilton's rule will*
- > *frequently make the assumption that the altruistic allele is rare. This*
- > *assumption is not necessary for the validity of the rule.*

JE:–

The rule cannot work (even on just an irrational 100% relative basis) if just one allele has mutated

to become “altruistic”. Unless a number of these alleles have mutated at the same time in the same way within the same population, the rule cannot work. If n alleles are required to mutate within the same genome (an epistatic mutation) then not only has a number of alleles required to mutate within the same population in the same way at the same time, n are required to mutate simultaneously in this way within the one individual. If n alleles are required then no hope exists for the rule. Of course a complex trait like organism fitness altruism would require n alleles.

Regards,

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