

Re: Kin altruism

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"Malcolm" <malcolm@55bank.freemove.co.uk> wrote:-

> > EG:-
> > *But does this argument really hold? As I see it, kin selection suffers
> > from the same weakness as does group selection. For what will happen
> > when all the individuals in the group are kin altruists? This group
> > will also be genetically unstable! If, in this group, a gene for
> > egoism appears in a single individual, (after a mutation, say) this
> > individual will benefit from the altruism of its kin (who didn't get
> > the egoism gene), and save the cost of acting altruistically against
> > its kin. This individual will then get more offspring (with the egoism
> > gene) than its kin altruist kin and other (kin altruist) members of
> > the group. The egoism gene will therefore, in the long run, outcompete
> > the kin altruism gene, just as it outcompeted the pure altruism gene in
> > the previous scenario!
> > Or have I overlooked something?*

> M:-
> *Yes. The alleles must be "identical by descent". This isn't a good phrase
> since all similar stretches of DNA, barring enormous accidents,
> must derive
> ultimately from the same ancestral piece. What it means is that the
> coefficient of relatedness is calculated through the common
> ancestor, not by
> comparing sequence homology. Otherwise I would be motivated to lose 40% of
> my resources to save an octopus, which is absurd.*

JE:-

M has correctly pointed out one of the most common misunderstandings of Hamilton et al, (uncorrected) logic. Ongoing discussion re: the evolution of organism fitness altruism (OFA) has been heatedly debated in sbe for over 4 years. I refer readers to recent exchanges.

Hamilton's rule is like an iceberg.
The vast majority of the fitness
that is required to be measured to prove
organism fitness altruism remains hidden
underwater.

M's argument is
based on Hamilton's rule:

$$rb > c$$

where:

r = relatedness (measured as a probability IBD)

b = resources moved (in fitness units)

c = cost of b (in the same fitness units)

The rule can only measure a relative
fitness difference between c and rb where
no absolute fitness is included. Thus the
altruist may sustain a relative loss
while making an absolute gain. In this
case Hamilton's rule would mistakenly measure
"altruism" when the act was exactly the
opposite: mutualistic.

Hamilton's uncorrected rule remains
hopelessly incomplete because it cannot measure
the difference between a donation or an investment
by the actor (the supposed altruist) without the
total fitness of the actor actually included
within the rule as a general term. What most
people do not understand is that rb and c,
which are compared by simple subtraction:

$$rb - c > 0$$

are not subtracted DIRECTLY they are only
subtracted INDIRECTLY via a missing baseline
fitness m, that has been included on BOTH sides
of the inequality allowing this baseline
(the water line of the iceberg) to become
deleted, mathematically.

Example:

Thus if r=0.5, c=2 and b = 1 then:

$$0.5 * 2 - 1 > 0$$

$$1 > 0$$

so the rule measures OFA for the actor
in this case.

If $m=10$ and you add m to both sides:

$$10 + 1 > 10$$

$$11 > 10$$

So again, OFA is measured for the actor.

Mathematically nothing has changed but BIOLOGICALLY it HAS. This is because only now has 100% of the actor's fitness become visible instead of remaining invisible (below the iceberg's water line).

Clearly, in the instance above, only 10% of the potential total fitness is involved in the supposed altruistic donation as a cost c and not 100%, i.e. the top of the iceberg is 10% with 90% hidden below water. Unless 100% is involved Hamilton et al cannot prove that b was just an altruistic donation since b may have been an investment by the actor (the exact opposite of a donation!)

Definitions:

Donation: a cost c paid for b that returns less than c to the actor.

Investment: a cost c paid for b that returns more than c to the actor.

If the total fitness of the actor = K
then OFA is only proven within Hamilton's rule when:

$$rb > K$$

Here $K = c_{max}$ (the maximum possible cost that any actor could possibly pay). In this case the actor will become sterile-like, i.e. it would be able to reproduce normally but would not do so.

This situation remains the ONLY case using Hamilton's rule where 100% of the hidden baseline fitness m becomes visible and active within the rule, i.e. the only case where absolutely nothing remains hidden because Hamilton's enormous fitness iceberg has towed to shore so nothing remains hidden under the water line.

Clearly, m cannot be $> K$ and $c+m = K$ if Hamilton's fitness books are to be balanced (one complete iceberg accounted for). If $c+m < K$ then some fitness has not been accounted for via the rule and if $c+m > K$ then fitness has been added from nowhere that has not been accounted for via the rule. One iceberg has to be accounted for not just the bit of it floating above the fitness waterline to measure when OFA can or cannot evolve.

Since:

$$K = c+m$$

And for OFA to be proven:

$$rb > K$$

Substituting $(c+m)$ for K :

$$rb > c+m$$

$$rb-c > m$$

The terms $rb-c$ represent Hamilton's defined inclusive fitness measure.

In Hamilton's rule inclusive fitness must be larger than zero and not m for OFA to be measured for any actor. This means, Hamilton's rule remains in error by the amount m when it is attempting to measure a difference between an altruistic donation and a mutualistic investment. This error is enormous because it represents most of Hamilton's fitness iceberg!

Hamilton's rule remains hopelessly incomplete and cannot do what it has been employed to do for over 50 years: measure when OFA can evolve. Yet, the Neo Darwinistic establishment remains recalcitrant, consistently misusing Hamilton's rule to measure when OFA can evolve, against all reason. I can only conclude that political bias i.e. running this misuse. The only other explanation is downright stupidity.

My regards to all,

sci.bio.evolution: Re: Kin altruism

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