

Re: Most important paper in evolutionary biology

Source: <http://sci.tech--archive.net/Archive/sci.bio.evolution/2005-09/msg00473.html>

- *From:* "Perplexed in Peoria" <jimmenegay@xxxxxxxxxxxxxx>
 - *Date:* Thu, 22 Sep 2005 17:25:06 -0400 (EDT)
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"John Edser" <edser@xxxxxxxxxx> wrote in message [news:dgst18\\$4d\\$1@xxxxxxxxxxxxxxxxxxxxxxxxxxxx](mailto:news:dgst18$4d$1@xxxxxxxxxxxxxxxxxxxxxxxxxxxx)

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> "Perplexed in Peoria" jimmenegay@xxxxxxxxxxxxxx wrote:--

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>> "Perplexed in Peoria" jimmenegay@xxxxxxxxxxxxxx wrote:--

>>> >I don't think I have ever claimed that Hamilton corrects errors

>>> >in Darwin. I don't think anyone else has claimed it either.

>>> >(Except perhaps Edser, and he doesn't think that it is a 'correction'.)

>

>>> JE:--

>>> Hamilton's rationale refutes Darwin and Wallace's rationale entirely, if

> and

>>> only if, Hamilton's Rule can be proven to explain the evolution of

> organism

>>> fitness altruism (OFA) in NATURE. This is because OFA remains _entirely_

>>> prohibited by Darwin and Wallace. [snip another confused 'mirror'

> argument]

>

>>I think that the heart of your confusion is an important distinction in

>>the definition of OFA. I will offer two definitions of OFA. Under one

>>of these definitions, I will agree that Darwin and Wallace would say that

>>it is prohibited – that it can't evolve. The thing is, I claim that

>>Hamilton would agree with them. He would also say that that kind of OFA

>>can't evolve.

>

>>But there is another kind of OFA ..

>

> JE:--

> This supposed other kind of OFA can be proven _empirically_ *NOT* to be

> organism fitness altruism (OFA) but organism mutualism (OFM).

John. If I understand you, you have just said that a proposed definition can be proven wrong empirically. And you said this before even reading what that second definition says. I'm not sure why I even try to discuss this stuff with you. Your understanding of the proper roles of definitions, logic, and experiment in science is utterly alien to me.

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> I argue this
> is the cause of the ongoing misuse of Hamilton's Rule where I might add,
> this is *NOT* just a simple question of semantics it remains a critical but
> not at all understood question of _empirically_ based (not just
> heuristically based) _selective events_ that DO exist within Darwinian
> Theory (from which Hamilton's Rule was just an oversimplification).
>
>
>>(a second definition) which Hamilton would
>>say can evolve. I claim that Darwin and Wallace never really thought about
>>this kind of OFA (except maybe as applied to parental care). But if they
>>had thought of it, they would agree with Hamilton.
>
> JE:–
> Yes, simply because this definition is OFM and *NOT* OFA where OFM verifies
> and does not contradict and therefore refute, _empirical_ Darwinian
> Evolutionary Theory. It can be proven that OFM is simply NOT addressed by
> Hamilton's Rule even though Neo Darwinian's incorrectly claim that it is.
>
>>Here is the first definition:
>>A gene is said to cause OFA if, on average, having the gene decreases
>>the fitness of the bearer (called the donor), and increases the fitness
>>of some other individual (called the recipient).
>>I suppose we need to define fitness here – I am happy to accept your
>>usual definition of TDF.
>>I suppose I also have to defend those words 'on average'. I put them there
>>because sometimes organisms do really stupid things. The important issue
>>for evolution is not whether an organism ALWAYS acts to maximize its TDF –
>>it is whether its traits tend to increase TDF on average.
>>Ok, given this definition, does Hamilton say that OFA can evolve? I claim
>>he does not. It is pretty much obvious that a gene causing OFA using
>>this definition is headed for extinction. The gene has no way of getting
>>into the next generation except by its bearers having fertile offspring,
>>and the OFA gene BY DEFINITION causes its bearers to have fewer children
>>on average. Hamilton was not stupid enough to say that this gene could
>>be favored by evolution. Obviously, it can't.
>
> JE:–
> Obviously.
>
>>Alright, here is the second definition:
>>A gene is said to cause OFA if it causes a behavior which, on average,
>>decreases the fitness of the bearer (called the actor or donor), and
>>increases the fitness of some other individual (called the recipient).
>>Hamilton says that OFA, under this definition, can be favored by selection
>>under some circumstances. The right circumstances are when $rb > c$.
>>The reason why this kind of OFA can increase is that bearers also
>>have their fitnesses increased by the behaviors of other bearers.
>
> JE:–
> Your "right circumstances" requires a FITNESS TOTAL FOR THE ACTOR (not just

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- > a sub total fitness of the actor) to be actually remain, i.e. NOT become
- > deleted from both sides of Hamilton's Rule as a critical but entirely
- > missing, constant term, i.e. the total fitness of the actor must remain on
- > one side of the rule NO MATTER WHAT.

Back to that again, huh? Well, there is some question as to which total fitness of the actor you should include. Define W to be the total fitness that the actor would have had if he had not acted altruistically (but had continued to receive any donations to which he was entitled as a bearer of the gene). Then Hamilton's rule can be written $W - c > W - rb$. We can even give a nice biological interpretation to this form of the rule, if we reinterpret W and c to be the averages over all bearers of the gene. The left side ($W - c$) is the average fitness of a bearer, since they do sometimes donate. The right side ($W - rb$) is the average fitness of a non-bearer of the gene, which must be reduced by rb since non-bearers are recipients less frequently.

- > This is absolutely required to provide
- > a fitness frame of reference which alone can allow OFA to be EMPIRICALLY
- > separated from OFM within any SCIENTIFIC rationale.

Before we can separate OFA from OFM empirically, we must first separate them definitionally – that is, we must agree on what they mean. Apparently we haven't done that yet.

- >>But if you are using definition #1, you wouldn't count this situation
- >>as OFA. You would call it OFM.
- >
- > JE:–
- > No, you have it in reverse. If you are using definition #2, i.e. NOT #1, you
- > wouldn't count this situation as OFA.

There must be some confusion here. It seems to me that you just said that if definition #2 is the correct definition of OFA then it is not a definition of OFA. Could you clarify?

- > You would call it OFM. Why? Simply
- > because as well as "bearers also have their fitness's increased by the
- > behaviors of other bearers", Hamilton's actor, who actually pays the cost c ,
- > can be proven to be required to a make a mutualised fitness investment and
- > NOT just an altruistic fitness donation in order to avoid extinction.

John, are you saying here that actors have to make a net gain from the altruism, not just that bearers must make a net gain? If so, then you are in disagreement with Hamilton (and also, incidentally, are wrong). But at least we have something clear-cut that we can talk about.

- > The actor has an entire LIFETIME (as determined by the total fitness of the
- > actor which remains deleted from the rule) over which to collect fitness
- > investment gains for itself. When $rb > c$ the c cost premium paid is just a
- > confused mutualised insurance premium investment and not an altruistic

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> donation because Hamilton's gene can only absolutely spread when the TOTAL
> fitness of Hamilton's "altruistic" actor INCREASES. Just the relative spread
> of Hamilton's gene when $rb > c$ at just one random point in time may mean that
> a recipient gain relative to an actor loss only allows Hamilton's gene and
> the wild type gene it is competing against to become absolutely less in
> frequency (even if one relatively wins over the other) because one or the
> other or both have suffered a TOTAL fitness loss forcing both to "evolve" to
> extinction as either the number of actors, recipients or both become
> absolutely less and less.

But John, if the situation is one of altruism in which $rb > c$, then b is definitely greater than c . A positive sum game is being played. On average, everyone gains. There is no evolution toward extinction. There is an evolution to ever higher population sizes.

You seem to be confusing the altruistic case with the case of spite, which only works when r is negative. In this case, there would be a kind of cycle toward extinction, but it never goes that far since opportunities for such spiteful behavior would become less and less frequent.

> Unless INTERDEPENDENT mutualised fitness events
> are > DEPENDENT non mutualised events within $rb > c$ everything is actually
> being argued to be able to be kin selected to extinction. I propose that if
> inclusive fitness rationale can select for extinction it is proven to be
> just an absurd evolutionary theory proposition.

Well, I predicted that you would say that neither of my definitions captured what you meant by OFA. I was wrong. You never clarified what you mean by OFA. However, you remain convinced that Hamilton was wrong, whatever he meant.

John, I recently used the phrase "tilting at windmills" to describe an attack against some error which one thinks that exists in the minds of the orthodoxy. Except that the error being attacked doesn't really exist in orthodox thinking. It is all a misunderstanding by the attacker.

You keep attacking Hamilton, but you repeatedly fail to state clearly and correctly what Hamilton said. You are not really attacking Hamilton. You are attacking a windmill, a strawman, a figment of your own imagination.

• **References:**

- ◆ **Re: Most important paper in evolutionary biology**
◇ From: John Edser

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