Re: Hamilton's rule in small population

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- *From*: "Jim McGinn" <jimmcginn@xxxxxxxxx>
- *Date*: Tue, 1 Nov 2005 13:28:36 −0500 (EST)

John Edser wrote:
> Catherine Woodgold wrote:−

> > There are maybe an average of
> > about one or two terms per sentence of yours such
> > that I would have to ask you for a definition of
> > that term before I would be able to understand;
> > but I'm afraid that if you tried to define them
> > you might use several more undefined terms in
> > each definition.

Welcome to the wonderful wide world of Edserian
semantics. John's a veritable cornucopia of creative
meaning. Ask him to define one concept and in his
response you'll get three new undefined concepts each
one of which generates the need to ask him to define
it and the process continues−−literally−−ad infinitum.

With John, the more questions you ask him to resolve
the more unresolved questions you end up with.

> JE:−
> Why don't you just ask and then see if this is, or is not, the case instead
> of jumping to such a conclusion?
>
> Quite frankly, my argument is just a very simple one: Hamilton's Rule was
> and remains a mathematical expansion of just tautological propositions where
> the tautology has been _misused_ as a theory of science. This is why I have
> politely requested, on two different occasions, that you re−examine
> Felsenstein's assumptions from which he derives the rule. So far you have
> declined to do so. Therefore I am forced to ask why?

I kinda know what he means, but I can't, at this instant,
think of what aspect of it is, supposedly, tautological.

>
>
> > I'm not able to guess what

> > the overall gist of what you're trying to say is.
>
>
> JE:−
> The "gist" is above. What I suspect is that you do not like the proposition
> so you are psychologically driven to evade it.

Well, I suspect the same thing. But, John, don't use
this as an excuse for the turbidity of your writing.

>
> > >> >> JE:−
> > >> >> Hamilton's Rule is group selective. To reduce it to organism
> > selective
> > >> you
> > >> >> must divide rb/p where p is the number of recipients. Whenever you
> > do
> > >> so
> > >> >> the
> > >> >> rule fails.
>
> > >> I wonder whether you mean situations like the following:
> > >> A strong wolf has some food. It altruistically gives
> > >> some of the food to a weaker wolf, perhaps a cub,
> > >> perhaps its own cub or a close relative such as
> > >> a niece or nephew. Some other wolves standing
> > >> around, who are not particularly related to those
> > >> two, were not able to get any of the food as long
> > >> as the strong wolf held it, but as soon as the weak
> > >> wolf gets the food, they grab it and it gets divided
> > >> up among many wolves.
> > >> Is that what you mean?
>
> > > JE:−
> > > In HR the recipients are equally related r to the actor.
> > > In this situation
>
> > In what situation? In the situation I described above?
>
> JE:−
> Obviously not :−)
>
> > But in what follows you seem to be talking about
> > a different situation.
>
> JE:−
> Yes, and this becomes evident in next sentence:
>
> > > JE:−
> > > the wolf donates x resources to p equally related cubs so
>

>
> > That is different from the situation I described.
>
> JE:−
> Yes, and it was and I meant it to be so. I am firstly illustrating
> Hamilton's reasoning because the rule under consideration is not Cathy's
> Rule or Edser's Rule it is and remains, Hamilton's Rule.

John's on target here.

>
>
> > > that each cub grows up and increases it's own mean Darwinian fitness by
> > b/p
>
> > This part makes sense to me for the situation you're
> > talking about, though it doesn't bear on the situation
> > I was describing.
>
> JE:−
> We firstly have to understand Hamilton's rationale before we can consider
> Cathy's.
>
>
> > > which reduces to a mean gene centric gain per individual of just rb/p
>
> > This part makes sense too.
>
> > > causing the rule to fail.
>
> > What rule? What do you mean by "fail"?
>
> JE:−
> Whenever rb>c then rb/p<c/p' where p'= the number of actors which is always
> 1 so Hamilton's allele ALWAYS fails to be able to spread unless the actor
> "inclusively selects" itself.
>
>
> > Does "fail" mean that some statement is not
> > true, or does it mean that some organism does
> > not succeed in achieving some goal such as surviving,
> > or does it mean something else?
>
> JE:−
> It means Hamilton's gene always fails to spread when b is corrected by p
> even on just a 100% relative basis.
>
>
> > > When rb remains group selective
>
> > I don't understand the above. "rb" is a quantity.

> > What does it mean for a quantity to be "group selective"?
>
> JE:−
> Cathy,
> This is a science list, specifically, an evolutionary theory list. We all
> have to assume that anybody who posts here is conversant with the basic
> evolutionary theory terms. The difference between individual selection and
> group selection within evolutionary theory is as basic to evolutionary
> theory as the difference between addition and multiplication is to
> mathematics. The controversy as to what exactly group selection is and if it
> can contest individual selection in nature has been raging since the 1960's.
> Group selection was first mooted by Wallace but was never formally accepted
> by Darwin as a part of his theory. It attempts to define organism groups as
> just one valid selectee (the thing being selected) and not each organism
> within that group allowing groups to contest each other in a Darwinian
> contest. The logic of group selection is the same as the logic of individual
> selection except that now, contesting groups reproduce groups in a
> population of groups instead of just contesting individuals reproducing
> individuals in a population of individuals. Quite clearly if group selection
> was possible then individuals could be group selected to act altruistically
> (reduce their own organism fitness).

Yes, this is correct.

> Models were provided in the 1960's that
> demonstrated that this was not the case.

This is not correct. This never took place. There have never been any
models that demonstrated that group selection is not possible. This is
nothing more than a scientific version of an urban legend.

The reason why Hamilton's Rule was
> invented was to provide an _organism_ centric (the organism is the thing
> selected) that COULD allow the evolution of altruism in nature and NOT a
> group selective argument.

This is true. This is the reason Hamilton was (wrongly) assumed to be
necessary.

The irony is that Hamilton's rationale turned out
> to be group selective all along. Nobody disputes this today. So we are all
> back to where we started in 1960's. The only way out appeared to be making
> Hamilton's Rule gene centric (individual genes suddenly became the thing
> selected and not the organism or the group). The problem with gene
> centricity is it remains entirely heuristic (not documented in nature). The
> only empirical candidates (documented observations of nature) are meiotic
> drive genes such as the "t allele" in mice which produces sterile adults
> providing a no win situation for _both_ organism and the t allele gene.

The best solution is the realization that selection can−−and, in fact,
always will, unavoidably−−have effects on many different levels at the

same time. Selcetion is not a level (unit) specific process. (Of course, this also means it's virtually immeasurable.)

>
>
> > I can imagine an organism selecting something, but
> > I find it hard to imagine a quantity selecting something.

Yikes. Edserian semantics strike again.

>
> JE:−
> Do not confuse what is being selected with what is applying the selective
> "force". In group selection the group is the only _selectee_ (the thing
> being selected) where the definition of what exactly constitutes a selectee
> in nature always remains CRITICAL to evolutionary theory. A selector is just
> whatever is applying the selective force. This can be many things including
> (confusingly) the selectee itself or even a group of them. This is commonly
> known as the "Baldwin Effect"

Uh . . .?

>
> http://www.geocities.com/Athens/4155/edit.html
>
>
> In evolutionary theory you have two very different types of theory: those
> with just the ONE selectee type which are known as single level theories
> (the term "level" defines the biological level of complexity which remains
> fitness independent) e.g. Darwinian theory only requires just the one level:
> the fertile organism level. In single level theories all other levels
> contest each other so that organism centric (organism level) selection
> contests group centric selection and gene centric selection contests both of
> these.
>
> Here is a just a soft view of group selection:
>
> http://www.progressivehumanism.com/group.html
>
>
>
> > > each individual
> > > does not need to care what happens regarding its own total fitness.
>
> > This sounds like the usual inclusive−fitness rhetoric, and is fine.
>
> JE:−
> Ok.
>
> > > It only
> > > needs to care about the b per group.

>
> > What about the c? Doesn't it need to care about the c per group?
>
> JE:−
> The variable fitness cost c is the cost to the actor for increasing the
> fitness of the recipients as _one whole_ by b. Because only the one actor
> exists then p' (the converter of group selection to individual selection on
> the actor's side of the rule) = 1 so c/p = c. In the same way, because the
> actor is related to itself by 1 r' (the converter to gene centric
> relatedness on the actor's side) is 1 so that r'c = c. Of course r and p on
> the recipients side are not just = 1....

fitness is not defined. Until it is (and it may be that it cannot be)
this is all highly speculative.

>
>
> > > So if the donated food is gobbled up by
> > > just one large cub who then proceeds to eat all the other cubs as well
> > > providing a larger b for the recipients as one whole compared to the
> > > situation in which each recipients lived, reproduced but provided a
> > smaller
> > > group b, then all to the good re: a group selective rb.
>
> > If one large cub can have more offspring than many small
> > cubs, that may be. With real wolves I think that is usually> not the
> case.
>
> JE:−
> The point is a group selective b does not have to care about reductions of
> individual fitness, even to zero for the recipients except one. All it has
> to care about is the size of b and not the size of b per recipient. Please
> note that only by defining each recipient as passive can group selection
> even apply. If the recipients become active then they are automatically
> selected to squabble over the x resources donated which they cannot do while
> they are defined to remain passive.

John, the absoluteness of your conclusions in this passage is dictated
by the absoluteness of your assumptions of how your calculate B and C
and not, unfortunately, by anything empirical. IOW, you are coming to
conclusions that are not evident, or not necessarily so.

>
>
> > However, I'm losing track of how this might
> > fit in with whatever was being talked about before.
>
> The issue under discussion is that p _must_ correct b so that c and b become
> "apples" allowing a valid comparison of them. Comparing an uncorrected b to
> c is just comparing "apples" to "oranges" without knowing how many apples =

> how many oranges.
>
>
> > > Quite obviously this
> > > is not the case if selection operates between active and not just
> > passive
> > > recipients. Hamilton's recipients have to be passive just to prohibit
> > > Darwinian selection operating between them.
>
> > Now you're bringing in the active/passive thing.
> > I think I disagree with you about the relevance of active/passive
> > to Hamilton's rule.
> > I don't even think "passive" can be adequately defined
> > for this topic.

Nor do I.

>
> JE:−
> You must understand that Hamilton et al have always applied this restriction
> and for a very good reason: the rule fails without it. This is because
> active recipients require p but passive recipients do not. The subject of
> this discussion is Hamilton's Rule and not Cathy's Rule. You can change
> Hamilton's restrictions any time you wish within your own rule but not
> before you understand what they were and why they were implemented by
> Hamilton et al.
>
> > An organism is never totally passive.
>
> JE:−
> In Hamilton et al the passivity only applies to the SOCIAL ACT. This is
> EXACTLY: the transfer of resources. Of course these remain entirely hidden
> and not even accounted for within the rule. The argument that they are not
> required to be is fallacious.
>
> >snip<
>
> > > Gene centricity is defined within HR as genes replicated over _organism_
> > > generations and NOT gene generations
>
> > I don't know what "gene generations" means (something about
> > cells dividing in multicellular organisms perhaps?).
>
> JE:−
> Genes can replicate by mitosis and meiosis. Hamilton's Rule only accounts
> for genes replicated by meiosis over ORGANISM generations of that meiotic
> gene replication. What this means it that in empirical reality, Hamilton's
> rationale is organism centric and not gene centric.
>
>
> > > so that reducing rb

>
> > Is this "reducing" in the sense of a quantity getting
> > smaller, or "reducing" in the sense of proving that
> > one mathematical proposition depends on another?
>
> JE:−
> The inclusive fitness converter r reduces the level of _complexity_ as to
> what is selected from organism centric to gene centric.
>
>
> > I don't see how either of these concepts would fit
> > into your argument.
>
> JE:−
> The argument being presented is that group, organism and gene levels of
> selection contest each other. The reason WHY Hamilton's Rule allows altruism
> to evolve using the gene centric argument is because "selfish genes" contest
> and win against the Darwinian organism level forcing the parent organism to
> _reduce_ Darwinian fitness.
>
>
> > > from being group
> > > centric to organism centric remains an essential and necessary first
> > stage
> > > in reducing rb to a valid heuristic gene centricity.
> >
> > ... here I pretty well get totally lost and give up.
>
>
> JE:−
> To reduce (in the sense of complexity) a group selective b to a gene centric
> b *TWO* successive stages are required and not just the one. These are:
>
> 1) Reduce b from a group centric argument to an organism centric argument by
> dividing b by p where p = the number of recipients.
>
> 2) Only then can you reduce b/p from an organism centric argument to a gene
> centric argument by multiplying b/p by r = rb/p
>
> Deleting p was never a valid option yet it always remains deleted.
>
>
> > > Gene centric Neo
> > > Darwinists just skip this critical step. They go from classically
> > organism
> > > centric to heuristic gene centric by the magic of mathematics which just
> > > crashes through the _necessary_ selective barriers set up within
> > > evolutionary theory like a bull in a china shop.
>
> JE:−
> Because step 1) above was simply deleted by biologically ignorant

> mathematicians they ended up smashing up the organism level of selection
> which is the most expensive piece of china in the evolutionary theory china
> shop.
>
> > >> That situation is not what I mean when I talk about
> > >> altruistic acts with b and c.
>
> > > JE:−
> > > Ok.
>
> > >> When I talk about
> > >> the direct effects of the act, I mean to include
> > >> things like benefit to other wolves standing around
> > >> like that. I said there was no direct benefit
> > >> to others; that was meant to exclude situations
> > >> such as the above. Maybe I need a word in between
> > >> "direct" and "indirect".
>
> > > JE:−
> > > What you are looking for is something that exists between DEPENDENT and
> > > INDEPENDENT selectees within empirically based evolutionary theory. They
> > do
> > > not exist, i.e. they can only exist as a CONTRADITION.
>
>
> > >> The only indirect
> > >> effect I want to allow in the scenario is that
> > >> because certain individuals survive, they take up
> > >> habitat space and resources and this causes others
> > >> to have to die off to make space.
>
> > > JE:−
> > > Darwinian evolution by natural selection acting on random heritable
> > > variation is not just a zero sum game. It requires a maximand
> > proposition.
> > > Are you aware of what this is?
>
> > I've seen the term "maximand" before and from Latin I suppose
> > it means "that which is to be maximized". I think you would
> > have to explain what you mean by it in this context.
> > I know what "zero sum game" means.
>
> JE:−
>
> http://home.eunet.cz/berka/o/English/lp/glossary/M.html
>
> Maximand. The objective function in a mathematical program whose sense of
> optimization is to maximize.
>
> The best way to illustrate a maximand is to give an example. The constant c
> within E=M*c^2 represents a maximand. The velocity of light can be < c but

> it cannot be >c where the velocity of light is always maximized. The Total
> Darwinian Fitness (TDF) of Hamilton's actor (which remains deleted from the
> rule) represents a Darwinian maximand. What this means is that every
> Darwinian selectee (fertile form) without exception, maximizes the total
> number of fertile forms it reproduces into one population. This means that
> TDF cannot be selected to be reduced prohibiting the evolution of actor
> altruism in _nature_ via Hamilton's Rule.
>
> Regards,
>
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>
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- Prev by Date: ***Re: Paper: Chimpanzees are indifferent to the welfare of***
- Next by Date: ***Book adds aliens to bio classification system***
- Previous by thread: ***Re: Hamilton's rule in small population***
- Next by thread: ***Re: Hamilton's rule in small population***
- Index(es):
  - ♦ ***Date***
  - ♦ ***Thread***