From: Nowak, Martin █████████████████████

Sent: Wednesday, October 15, 2014 4:05 PM

To: Jeffrey Epstein

Subject: Fwd: 70 year old problem solved :)

tibor announces solution of luria delbrueck

Begin forwarded message:

From: Tibor=Antal <Tibor.Antal@ed.ac.uk <mailto:Tibor.Antal@ed.ac.uk> =gt;

Subject: 70=year old problem solved :)

Date: Octob=r 15, 2014 11:46:27 AM EDT

To: "=Nowak, Martin" <martin=nowak@harvard.edu <mailto:martin_nowak@harvard.edu> >, Ivana Bozic <ibozic@math.harvard.edu <mailto:ibozic@math.h=rvard.edu> >, Ben Allen <benjcallen@gmail.com>

Dear Martin, Ivana, Ben,

we just put online this paper on the number of mutants in an exponenti=lly growing population.
Cell death is included and mutations can be advantageous, neutral or d=leterious.
http://arxiv.org/abs/1410=3307v1 <http://arxiv.org/abs/1410.3307v1>
I'm very happy about this.

This is the problem set up by Luria and Delbruck and generalized to ou= setup by Martin, Yoh and Francisca.
We completed those results.

Also, Kessler and Levine gave an approximate method and solve the larg= population small mutation limit.
Our solution is for general parameters, but recover their results as l=mits, in a much simpler and rigorous way.

That's all, these results now can be used in future models.

All the best, Tibor
-- --- ----- ------- ----------- -------=----- ----------------
Tibor ANTAL   =el: +44 1316-517-672
School of Mathematics, Edinburgh University
http://www.maths.ed.ac.uk/~ant=l <http://www.maths.ed.ac.uk/~antal>   JCMB5403
- - -- --- ----- -------- -------------- -----------------------

The University of Edinburgh is a charitable body, registered in
Scotland, with registration number SC005336.