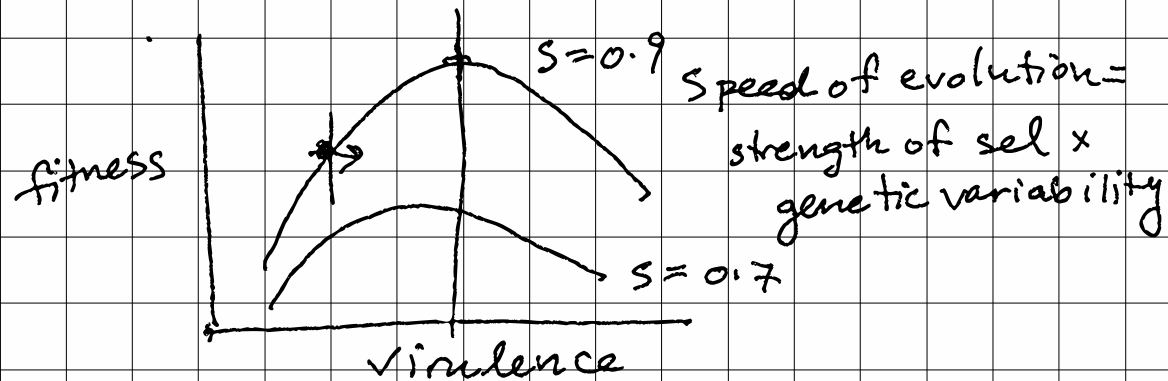


4 March 2022

## modes of transmission

QUALITATIVE diff in virulence  
due to parasite's requirement  
for a healthy host -

- ? does higher transmission opportunity select for higher virulence



## eco-evolutionary model

- mathematicians :

ecological / evol equilibrium.

evolution  $\rightarrow R_0$  fitness  
speed doesn't matter

$\hookrightarrow$  overall level of transmission  
doesn't matter.

## EPIDEMIC phase

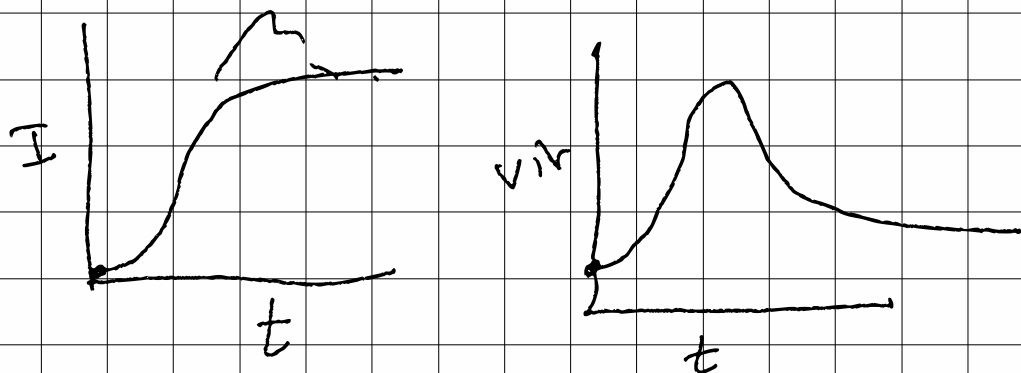
(exponential growth)

$$r = \text{growth rate} = \beta - \gamma$$

$$(R_0 = \beta / \gamma)$$

- increased transmission  
DOES select for inc virulence

epidemic phase optimal vir ( $r$ )  
> endemic - optimal ( $R_0$ )



facultative parasites  
(saprophytes)

? spatial restriction ?