

With a bit of work...

$$E[Z_i] = \frac{4Nm}{i}$$

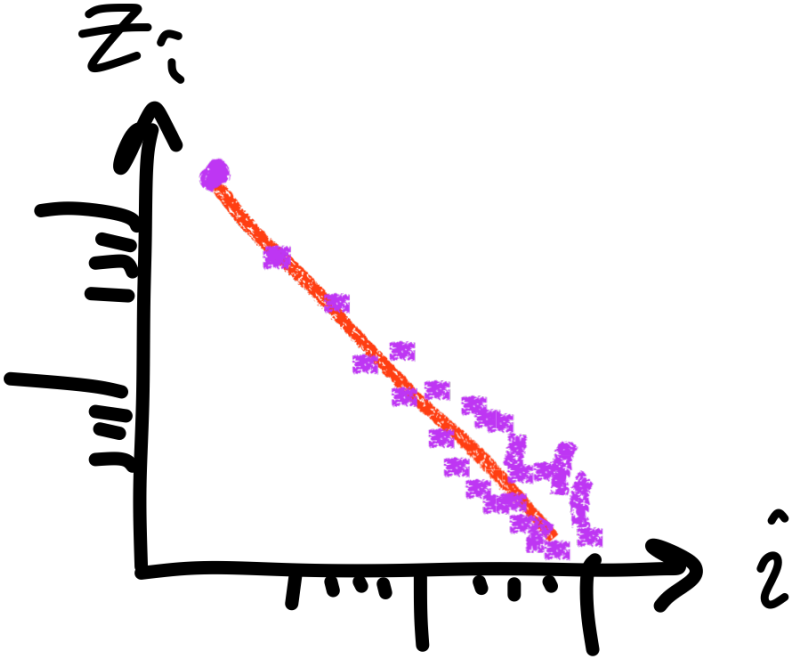
(for constant N) $i=1,2,\dots,n-1$

$$\begin{aligned}\log Z_i &= \log \left(\frac{4Nm}{i} \right) \\ &= \log 4Nm - \log i\end{aligned}$$

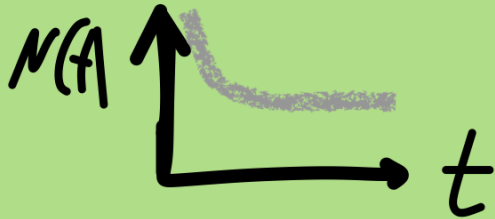
Theory: sample frequency spectrum (SFS)

SFS: histogram of mutant
allele frequencies

$\vec{z} = [z_1, z_2, \dots, z_{n-2}]$, $z_i = \# \text{mutations with frequency } i \text{ in sample}$



Question: what happens to
SFS if $N(t)$ is changing?



Theory: sample frequency spectrum (SFS)

SFS: histogram of mutant allele frequencies

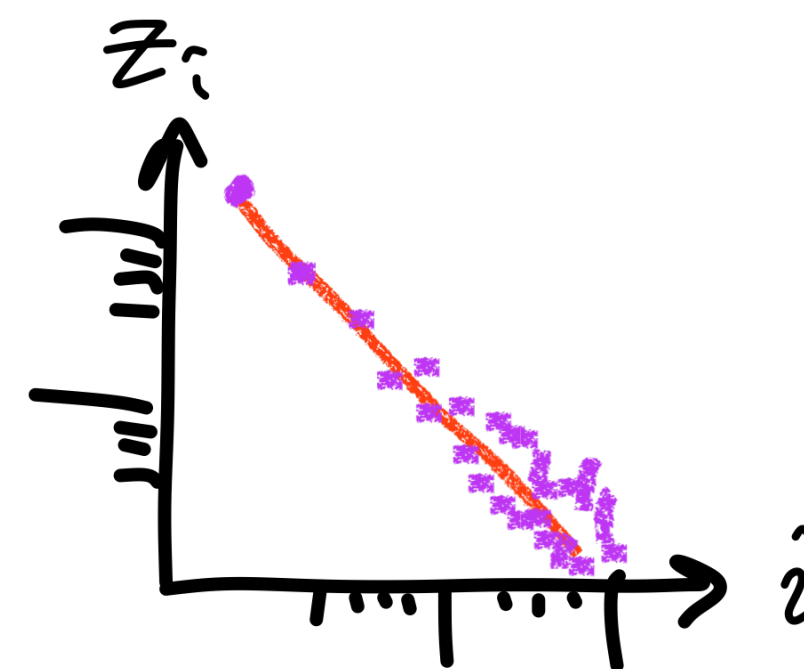
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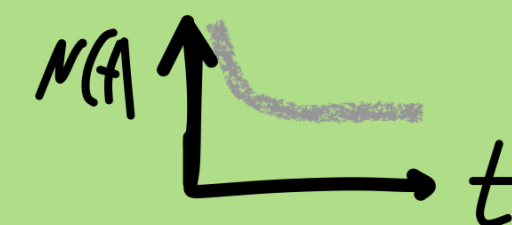
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Question: what happens to SFS if $N(t)$ is changing?



Non tree-like ancestry

Recombining genomes as mosaics

