

Calculation of the cost over the benefit of codon c at position i where
 a_1 is the static cost of genome building
 a_2 is the general cost of reading a codon (assumed constant, likely not)
 n is the length of the genome
 p_{ic} is the probability of a nonsense error at position i using codon c
 p_j is the probability of a nonsense error at position j (not knowing the codon?)

At position i ...

$$\frac{\text{Expected Cost}}{\text{Expected Benefit}} = \frac{[(\text{probability we reach } i)(\text{cost of reaching } i)(\text{probability of failure})]}{\sum_{i=1}^n (\text{value}_i)(\text{probability}_i)}$$

Since $\text{value}_i = 0$ for all $i < n$,

$$\begin{aligned} \frac{\text{Expected Cost}}{\text{Expected Benefit}} &= \frac{[(\text{probability we reach } i)(\text{cost of reaching } i)(\text{probability of failure})]}{\text{probability we reach } n} \\ &= \frac{\left[\prod_{j=1}^{i-1} (1 - p_j) \right] \left[\sum_{k=1}^i a_1 + a_2(k - 1) \right] [p_{ic}]}{\prod_{j=1}^n (1 - p_j)} \\ &= \left[\prod_{j=i}^n \frac{1}{1 - p_j} \right] \left[\sum_{k=1}^i a_1 + a_2(k - 1) \right] [p_{ic}] \\ &= \left[\prod_{j=i+1}^n \frac{1}{1 - p_j} \right] \left[\sum_{k=1}^i a_1 + a_2(k - 1) \right] \left[\frac{p_{ic}}{1 - p_{ic}} \right] \end{aligned}$$