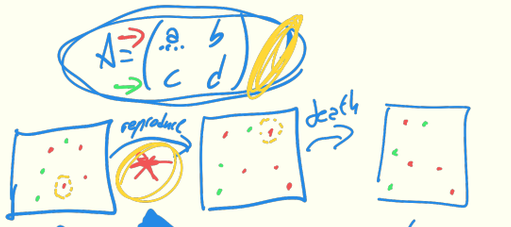


$$A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$$

$$f_{1i} = \frac{a(i-1) + b(N-i)}{N-1}$$

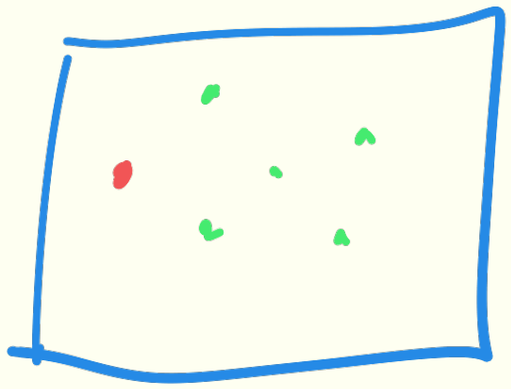
$$f_{2i} = \frac{ci + d(N-i-1)}{N-1}$$

$$p_{i,i+1} = \frac{\cancel{i f_{1i}}}{\cancel{i f_{1i} + (N-i) f_{2i}}} \cancel{\frac{N-i}{N}}$$

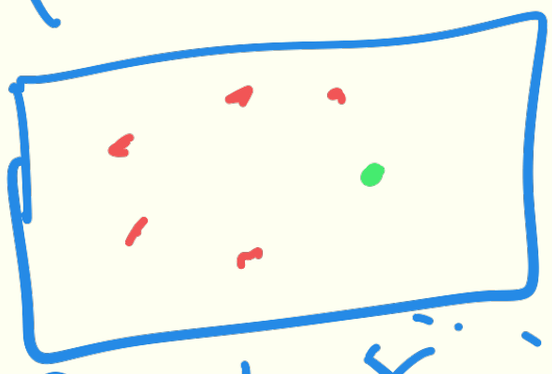
$$p_{i,i-1} = \frac{\cancel{(N-i) f_{2i}}}{\cancel{i f_{2i} + (N-i) f_{1i}}} \cancel{\frac{i}{N}}$$

$$\gamma_i = \frac{p_{i,i-1}}{p_{i,i+1}} = \frac{f_{2i}}{f_{1i}}$$

$$x_i = \frac{1 + \sum_{j=1}^{i-1} \prod_{k=1}^{j} \gamma_k}{1 + \sum_{j=1}^{N-1} \prod_{k=1}^{j} \gamma_k}$$



$$\rho_1 = x_1$$



$$\rho_2 = 1 - x_{N-1}$$