

Recurrence Relations for α_{ij} 's

$$\alpha_{ij}(t) \alpha_{ij}(t+1) =$$

$$\alpha_{i+1,j}(t) \alpha_{i-1,j}(t+1) + \alpha_{i,j+1}(t) \alpha_{i,j-1}(t+1)$$

$$2 \leq i \leq p, 2 \leq j \leq q$$

$$\alpha_{i+1,j}(t) \alpha_{i-1,j}(t+1)$$

$$2 \leq i \leq p, j \in \{1, q+1\}$$

$$\alpha_{i,j+1}(t) \alpha_{i,j-1}(t+1)$$

$$i \in \{1, p+1\}, 2 \leq j \leq q$$

$$\alpha_{2,1}(t) \alpha_{1,2}(t)$$

$$i = j = 1$$

$$\alpha_{p,q+1}(t+1) \alpha_{p+1,q}(t+1)$$

$$i = p+1, j = q+1$$

$$\alpha_{p+1,2}(t) \alpha_{p,1}(t+1)$$

$$i = p+1, j = 1$$

$$\alpha_{2,q+1}(t) \alpha_{1,q}(t+1)$$

$$i = 1, j = q+1$$

$\alpha_{ij}(t)$ defined
for $1 \leq i \leq p+1$
 $1 \leq j \leq q+1$