

$$\mathbf{a\_P} = \begin{matrix} & \begin{matrix} \nearrow n_t \\ \nearrow n_s \end{matrix} \\ \begin{matrix} \downarrow n_s \end{matrix} & \begin{bmatrix} p[H,H,1] & p[H,S1,1] & p[H,S2,1] & p[H,D,1] & p[S1,D,2] & p[S2,D,n_t] \\ p[S1,H,1] & p[S1,S1,1] & p[S1,S2,1] & p[S1,D,1] & p[S2,D,2] & p[D,D,n_t] \\ p[S2,H,1] & p[S2,S1,1] & p[S2,S2,1] & p[S2,D,1] & p[D,D,2] & \ddots \\ p[D,H,1] & p[D,S1,1] & p[D,S2,1] & p[D,D,1] & & \end{bmatrix} \end{matrix}$$

The matrix is partitioned into blocks by dashed lines. The top-left block is a \$2 \times 4\$ matrix of probabilities \$p[H, \cdot, 2]\$. The top-right block is a \$2 \times 2\$ matrix of probabilities \$p[S1, D, \cdot]\$. The bottom-left block is a \$4 \times 4\$ matrix of probabilities \$p[\cdot, \cdot, 1]\$. The bottom-right block is a \$4 \times 2\$ matrix of probabilities \$p[\cdot, D, \cdot]\$.