

$$\begin{array}{l}
\mathbf{a_P_tunnels} = \begin{array}{c} \downarrow \\ n_s \end{array} \left[\begin{array}{ccccccc} p[H,H,1] & p[H,S1_1,1] & p[H,S1_2,1] & \cdots & p[H,S1_\tau,1] & p[H,S2,1] & p[H,D,1] \\ p[S1_1,H,1] & p[S1_1,S1_1,1] & p[S1_1,S1_2,1] & \cdots & p[S1_1,S1_\tau,1] & p[S1_1,S2,1] & p[S1_1,D,1] \\ p[S1_2,H,1] & p[S1_2,S1_1,1] & p[S1_2,S1_2,1] & \cdots & p[S1_2,S1_\tau,1] & p[S1_2,S2,1] & p[S1_2,D,1] \\ \vdots & \vdots & \vdots & \ddots & \vdots & \vdots & \vdots \\ p[S1_\tau,H,1] & p[S1_\tau,S1_1,1] & p[S1_\tau,S1_2,1] & \cdots & p[S1_\tau,S1_\tau,1] & p[S1_\tau,S2,1] & p[S1_\tau,D,1] \\ p[S2,H,1] & p[S2,S1_1,1] & p[S2,S1_2,1] & \cdots & p[S2,S1_\tau,1] & p[S2,S2,1] & p[S2,D,1] \\ p[D,H,1] & p[D,S1_1,1] & p[D,S1_2,1] & \cdots & p[D,S1_\tau,1] & p[D,S2,1] & p[D,D,1] \end{array} \right] \begin{array}{c} \nearrow \\ n_t \end{array} \left[\begin{array}{ccccccc} p[H,H,n_t] & p[H,S1_1,n_t] & p[H,S1_2,n_t] & \cdots & p[H,S1_\tau,n_t] & p[H,S2,n_t] & p[H,D,n_t] \\ p[H,H,2] & p[H,S1_1,2] & p[H,S1_2,2] & \cdots & p[H,S1_\tau,2] & p[H,S2,2] & p[H,D,2] \\ p[S1_1,D,2] & p[S1_2,D,n_t] & \vdots & p[S1_\tau,D,n_t] & p[S2,D,n_t] & p[D,D,n_t] & \cdots \end{array} \right]
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