

$$\delta_{i_,j_} := \text{If}[i === j, 1, 0];$$

$$\mathbf{gR}_{s_,i_,j_} := \{$$

$$\mathbf{g}_{v_j\beta_} \Rightarrow \mathbf{g}_{vj^+\beta} + \delta_{j\beta}, \quad \mathbf{g}_{v_i\beta_} \Rightarrow T_v^s \mathbf{g}_{vi^+\beta} + (1 - T_v^s) \mathbf{g}_{vj^+\beta} + \delta_{i\beta},$$

$$\mathbf{g}_{v_\alpha i^+} \Rightarrow T_v^s \mathbf{g}_{v\alpha i} + \delta_{\alpha i^+}, \quad \mathbf{g}_{v_\alpha j^+} \Rightarrow \mathbf{g}_{v\alpha j} + (1 - T_v^s) \mathbf{g}_{v\alpha i} + \delta_{\alpha j^+}$$

}