$$\mathbf{Q_t} = \begin{array}{c} \\ \text{H} \\ \text{S1} \\ \text{S2} \\ \text{DOC} \\ \text{DS} \end{array} \begin{array}{ccccc} \text{H} & \text{S1} & \text{S2} & \text{DOC} & \text{DS} \\ \left(-(\text{r\_HS1}_t + \text{r\_HD}_t) \right. & \text{r\_HS1}_t & 0 & \text{r\_HD}_t & 0 \\ \text{r\_S1H}_t & -(\text{r\_S1H}_t + \text{r\_S1S2}_t + \text{hr\_S1}_t \cdot \text{r\_HD}_t) & \text{r\_S1S2}_t & \text{r\_HD}_t & \text{hr\_S1}_t \cdot \text{r\_HD}_t - \text{r\_HD}_t \\ 0 & 0 & -(\text{hr\_S2} \cdot \text{r\_HD}_t) & \text{r\_HD}_t & \text{hr\_S2}_t \cdot \text{r\_HD}_t - \text{r\_HD}_t \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \left. 0 \right) \end{array}$$

$$\mathbf{Q}_t = \begin{array}{c} \\ \text{H} \\ \text{S1} \\ \text{S2} \\ \text{D} \\ \text{trDS} \end{array} \begin{array}{ccccc} \text{H} & \text{S1} & \text{S2} & \text{D} & \text{trDS} \\ \left(-(\text{r\_HS1}_t + \text{r\_HD}_t) \right. & \text{r\_HS1}_t & 0 & \text{r\_HD}_t & 0 \\ \text{r\_S1H}_t & -(\text{r\_S1H}_t + \text{r\_S1S2}_t + \text{hr\_S1}_t \cdot \text{r\_HD}_t) & \text{r\_S1S2}_t & \text{hr\_S1}_t \cdot \text{r\_HD}_t & \text{hr\_S1}_t \cdot \text{r\_HD}_t - \text{r\_HD}_t \\ 0 & 0 & -(\text{hr\_S2}_t \cdot \text{r\_HD}_t) & \text{hr\_S2}_t \cdot \text{r\_HD}_t & \text{hr\_S2}_t \cdot \text{r\_HD}_t - \text{r\_HD}_t \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \left. 0 \right) \end{array}$$

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