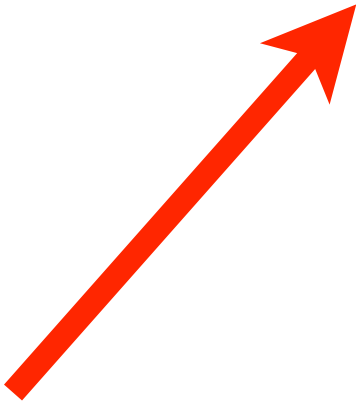


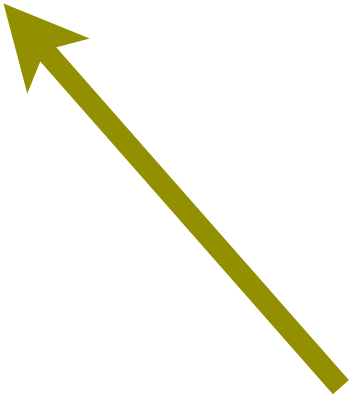
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Parameter Tying

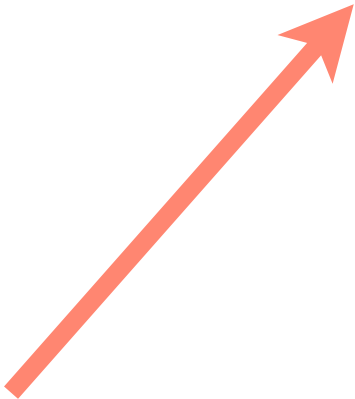


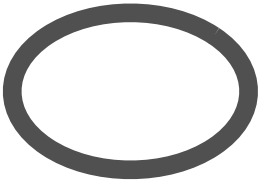


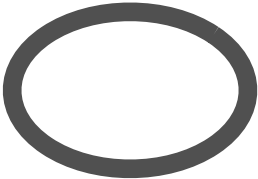


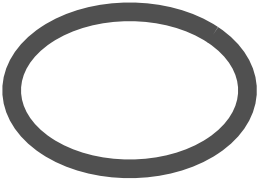


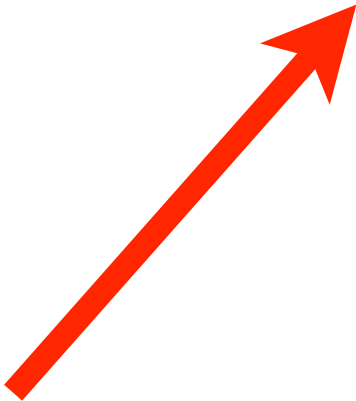






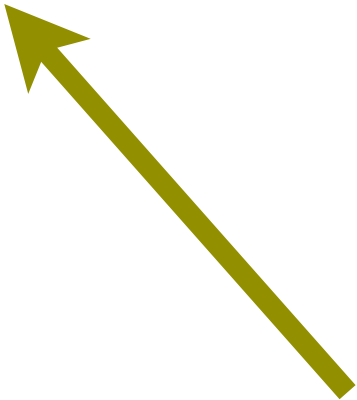


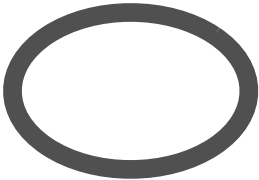


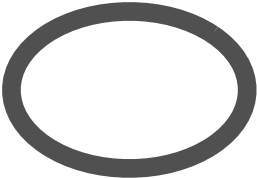


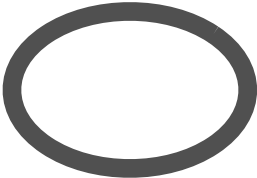


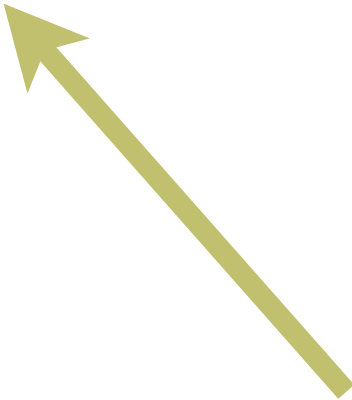


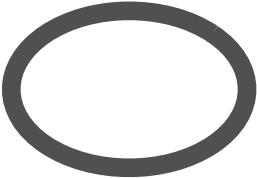


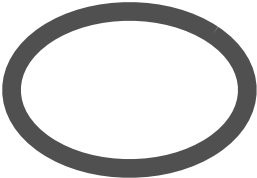












$$a_{ij} = \begin{cases} c_{i-j} & 0 \leq j - i < s \\ 0 & \text{o.w.} \end{cases}$$

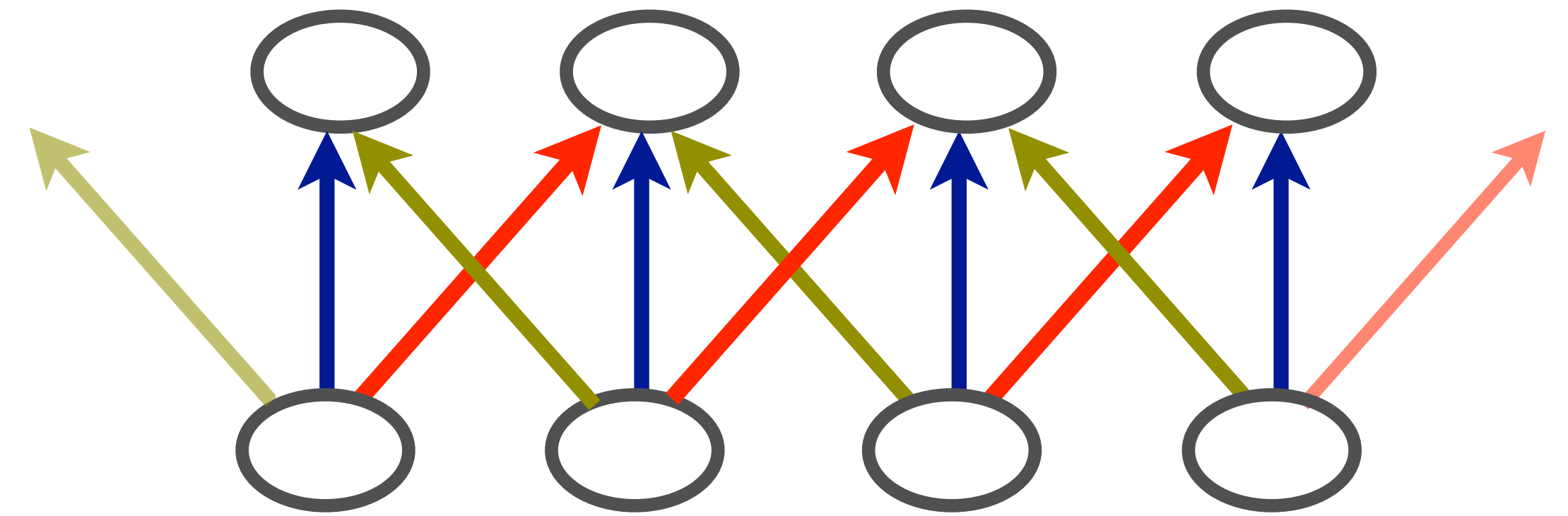
$$\begin{bmatrix} c_1 & c_2 & c_3 & 0 & 0 & 0 & 0 & 0 \\ 0 & c_1 & c_2 & c_3 & 0 & 0 & 0 & 0 \\ 0 & 0 & c_1 & c_2 & c_3 & 0 & 0 & 0 \\ 0 & 0 & 0 & c_1 & c_2 & c_3 & 0 & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \end{bmatrix}$$

$$h_{i}^{r+1} = \sigma \left(\sum_{j=-s}^s c_j h_{i-j}^r \right)$$

$$j \leq 0 :: c_j \equiv c_{2s+1+j}$$

Parameter Tying

$$a_{ij} = \begin{cases} c_{i-j} & 0 \leq j - i < s \\ 0 & \text{o.w} \end{cases}$$



$$\begin{bmatrix} c_1 & c_2 & c_3 & 0 & 0 & 0 & 0 & 0 \\ 0 & c_1 & c_2 & c_3 & 0 & 0 & 0 & 0 \\ 0 & 0 & c_1 & c_2 & c_3 & 0 & 0 & 0 \\ 0 & 0 & 0 & c_1 & c_2 & c_3 & 0 & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \end{bmatrix}$$

$$h_i^{r+1} = \sigma \left(\sum_{j=-s}^s c_j h_{i-j}^r \right)$$

$$j < 0 : c_j \equiv c_{2s+1+j}$$

Parameter Symmetrization

