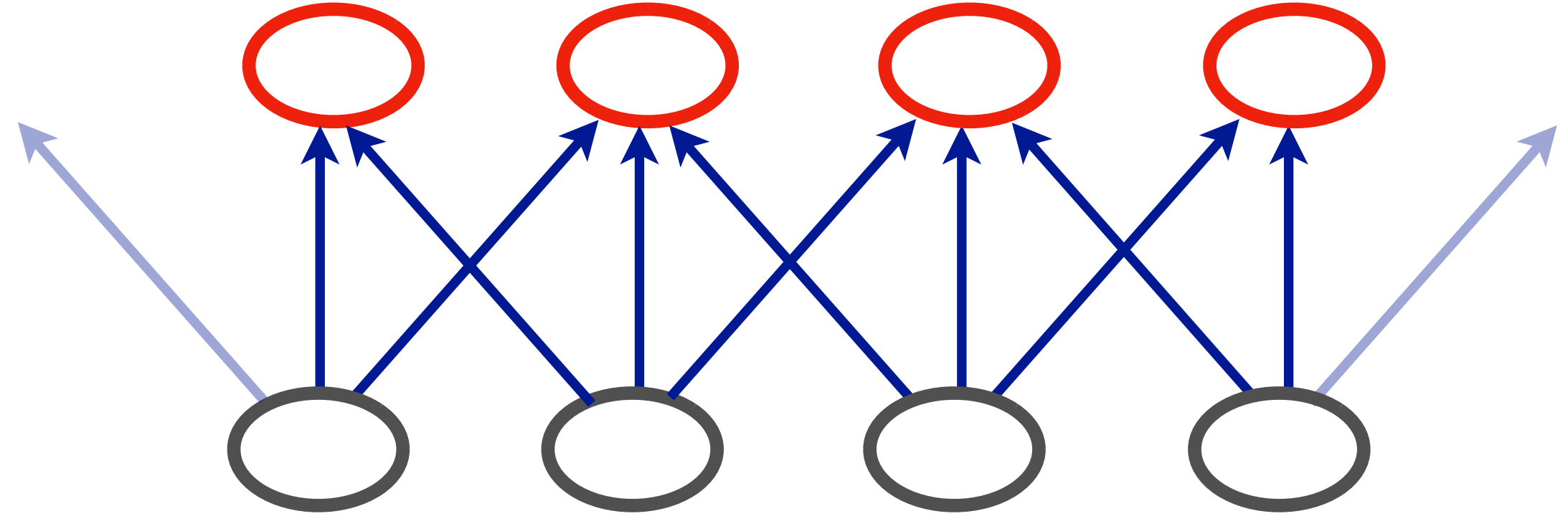


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Structural Self-Similarity





aj

$$a_{ik} = w[v_i \rightarrow u_k] = 0$$

$$\Rightarrow a_{i+1}k_{+1} = w[v_{i+1} \rightarrow u_{k+1}] = 0$$

$$\begin{bmatrix} a_{11} & a_{12} & a_{13} & 0 & 0 & 0 & \dots & 0 \\ 0 & a_{22} & a_{23} & a_{24} & 0 & 0 & \dots & 0 \\ 0 & 0 & a_{33} & a_{34} & a_{35} & 0 & \dots & 0 \\ 0 & 0 & 0 & a_{44} & a_{45} & a_{46} & \dots & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \end{bmatrix}$$













U











S





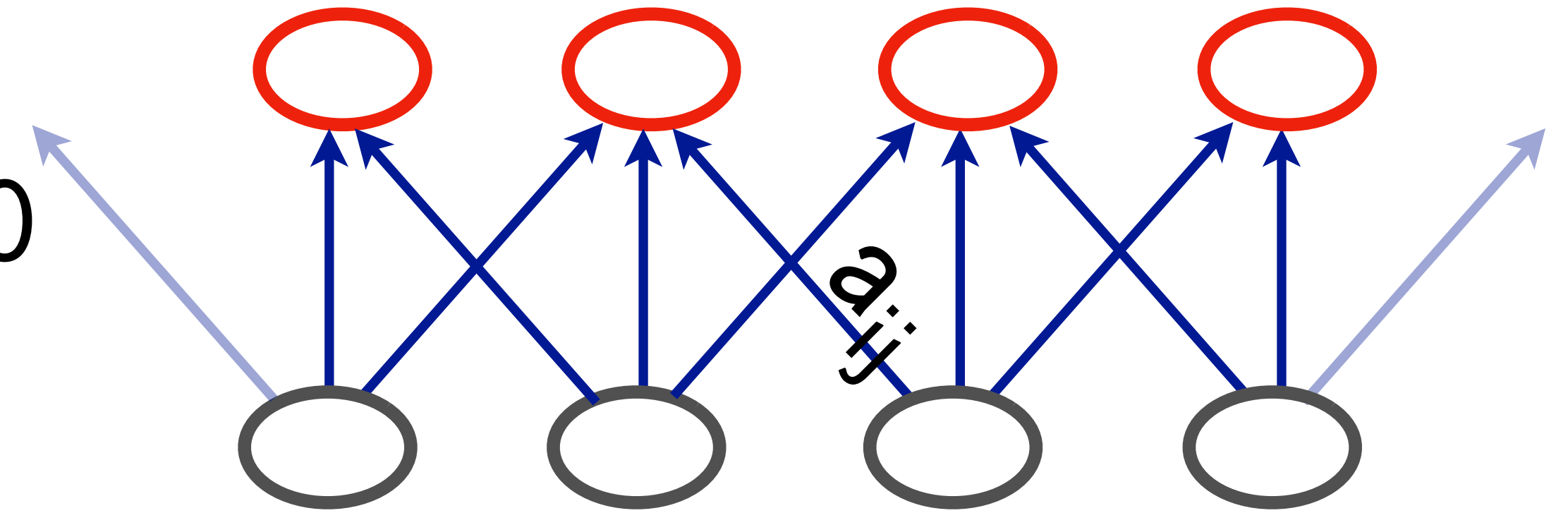




Structural Self-Similarity

$$a_{ik} = \mathbf{w}[v_i \rightarrow u_k] = 0$$

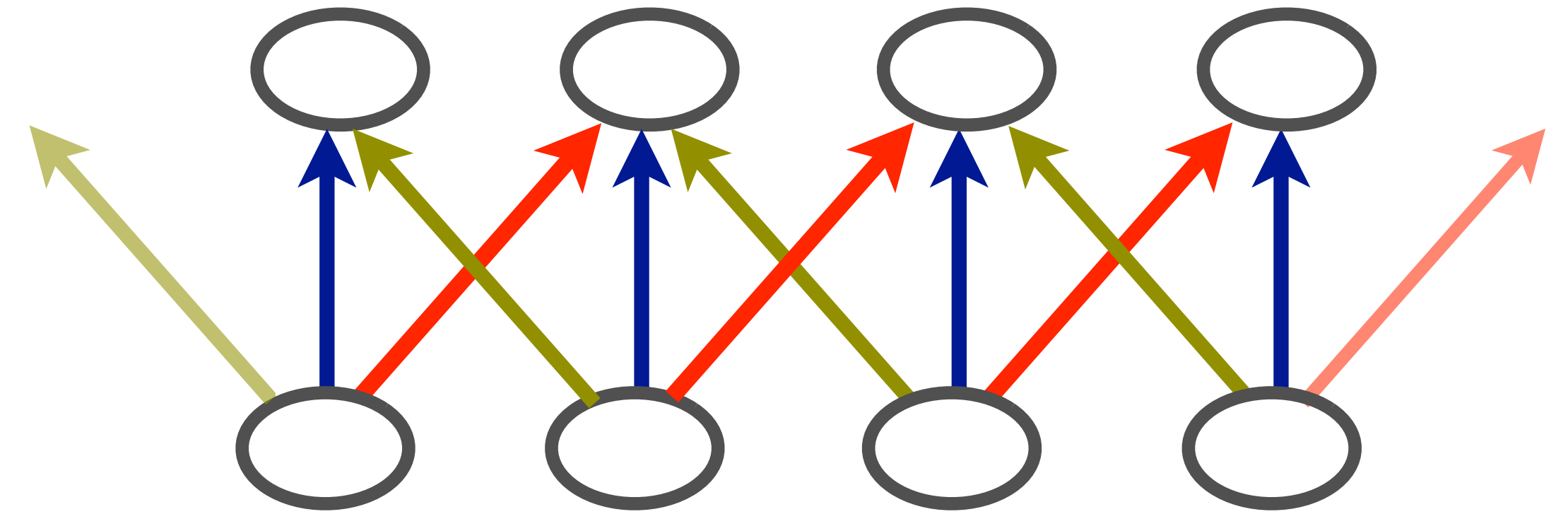
$$\Rightarrow a_{i+1, k+1} = \mathbf{w}[v_{i+1} \rightarrow u_{k+1}] = 0$$



$$\begin{bmatrix} a_{11} & a_{12} & a_{13} & 0 & 0 & 0 & \dots & 0 \\ 0 & a_{22} & a_{23} & a_{24} & 0 & 0 & \dots & 0 \\ 0 & 0 & a_{33} & a_{34} & a_{35} & 0 & \dots & 0 \\ 0 & 0 & 0 & a_{44} & a_{45} & a_{46} & \dots & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \end{bmatrix}$$

Can we further save ?

Parameter Tying



$$\begin{bmatrix} a_{11} & a_{12} & a_{13} & 0 & 0 & 0 & \dots & 0 \\ 0 & a_{22} & a_{23} & a_{24} & 0 & 0 & \dots & 0 \\ 0 & 0 & a_{33} & a_{34} & a_{35} & 0 & \dots & 0 \\ 0 & 0 & 0 & a_{44} & a_{45} & a_{46} & \dots & 0 \\ \dots & \dots & \dots & \dots & \dots & \dots & \dots & \dots \end{bmatrix}$$