

$$\text{att}_{T,n} \propto \exp \left(\kappa \frac{\langle \mathbf{v}_n, \mathbf{u}_T \rangle}{\|\mathbf{v}_n\|_2 \|\mathbf{u}_T\|_2} \right)$$

(realizes a k^{th} -order induction head)

$$\left[\begin{array}{c|c|c|c} \dots & \text{Emb}(x_n) & \dots & \text{Emb}(x_T) \\ \hline & \frac{\mathbf{u}_n}{\|\mathbf{u}_n\|_2} & & \frac{\mathbf{u}_T}{\|\mathbf{u}_T\|_2} \\ \hline & \frac{\mathbf{v}_n}{\|\mathbf{v}_n\|_2} & & \frac{\mathbf{v}_T}{\|\mathbf{v}_T\|_2} \end{array} \right]$$

$$\left[\dots \mid \text{Emb}(x_n) \mid \dots \mid \text{Emb}(x_T) \right]$$

