$att_{HGT} = \overrightarrow{h_a} K_{\tau(a)} W_{a,\tau(a \to z)} Q_{\tau(z)}^T \overrightarrow{h_z},$ $att_{RGAT} = \sigma \left([\overrightarrow{h_a} W_{\tau(a \to z)}; \overrightarrow{h_z} W_{\tau(a \to z)}] \overrightarrow{w_{a,\tau(a \to z)}}^T \right)$ $Edge\ message$

Edge attention

 $\overrightarrow{msg_{RGAT}} = h_a W_{\tau(a \to z)} \qquad h_z'' = \sum (\sigma_{sm}(att) \overrightarrow{msg})$ $\text{1 Message generation} \qquad \text{2 Node aggregation}$

 $\overrightarrow{msg_{HGT}} = (h_a V_{\tau(a)}) W_{m,\tau(a \to z)}$, Node aggregation