

From the description of the question, we can construct a equation:

$$\vec{a}^{(3)} = W^{(3)}(W^{(2)}(W^{(1)}\vec{a}^{(0)} + \vec{b}^{(1)}) + \vec{b}^{(2)}) + b^{(3)} = \tilde{W}\vec{a}^{(0)} + \tilde{b},$$

$$\text{where } \vec{a}^{(0)} = (a_0^{(0)} a_1^{(0)} a_2^{(0)} a_3^{(0)} a_4^{(0)} a_5^{(0)})^T, \vec{a}^{(3)} = (a_0^{(3)} a_1^{(3)} a_2^{(3)} a_3^{(3)} a_4^{(3)} a_5^{(3)})^T,$$

$$\vec{b}^{(1)} = (b_0^{(1)} b_1^{(1)} b_2^{(1)} b_3^{(1)} b_4^{(1)} b_5^{(1)})^T, \vec{b}^{(2)} = (b_0^{(2)} b_1^{(2)} b_2^{(2)} b_3^{(2)} b_4^{(2)} b_5^{(2)})^T,$$

$$\vec{b}^{(3)} = (b_0^{(3)} b_1^{(3)} b_2^{(3)} b_3^{(3)} b_4^{(3)} b_5^{(3)})^T,$$

$$W^{(1)} = \begin{pmatrix} W_{0,0}^{(1)} & \cdots & W_{0,5}^{(1)} \\ \vdots & \ddots & \vdots \\ W_{5,0}^{(1)} & \cdots & W_{5,5}^{(1)} \end{pmatrix}, W^{(2)} = \begin{pmatrix} W_{0,0}^{(2)} & \cdots & W_{0,5}^{(2)} \\ \vdots & \ddots & \vdots \\ W_{5,0}^{(2)} & \cdots & W_{5,5}^{(2)} \end{pmatrix},$$

$$W^{(3)} = \begin{pmatrix} W_{0,0}^{(3)} & \cdots & W_{0,5}^{(3)} \\ \vdots & \ddots & \vdots \\ W_{5,0}^{(3)} & \cdots & W_{5,5}^{(3)} \end{pmatrix}, \tilde{W} = \begin{pmatrix} W_{0,0} & \cdots & W_{0,5} \\ \vdots & \ddots & \vdots \\ W_{5,0} & \cdots & W_{5,5} \end{pmatrix}.$$

Thus, the connection between  $\tilde{W}$  and  $W^{(1)}, W^{(2)}, W^{(3)}$  is  $\tilde{W} = W^{(3)}W^{(2)}W^{(1)}$ .

The connection between  $\tilde{b}$  and  $\vec{b}^{(1)}, \vec{b}^{(2)}, \vec{b}^{(3)}$  is

$$\tilde{b} = \vec{b}^{(3)} + W^{(3)} \vec{b}^{(2)} + W^{(3)}W^{(2)} \vec{b}^{(1)}.$$