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$$\frac{\partial h_t}{\partial v} = h_{t-1} + v \cdot \frac{\partial h_{t-1}}{\partial v} \rightarrow \frac{\partial h_3}{\partial v} = h_2 + v \cdot \overset{0}{\uparrow} h_1 = \boxed{\frac{2}{3}}$$

$$\frac{\partial h_t}{\partial w} = \frac{\partial \text{Relu}(z_t)}{\partial z_t} \cdot \left(v \cdot \frac{\partial h_{t-1}}{\partial w} + x_t \right) \rightarrow \frac{\partial h_3}{\partial w} = \underbrace{v \cdot x_2}_{-2 \times \frac{3}{2}} + \overset{4}{\uparrow} x_3 = \boxed{1}$$

$$\frac{\partial h_t}{\partial x_T} = \frac{\partial \text{Relu}(z_t)}{\partial z_t} \left(v \cdot \frac{\partial h_t}{\partial x_T} + w \delta_{tT} \right)$$

$$\hookrightarrow \frac{\partial h_3}{\partial x_1} = \boxed{0}$$