$$egin{aligned} x_1, rac{\partial x_1}{\partial w_k} \ x_2, rac{\partial x_2}{\partial w_k} \ x_{t_i}, rac{\partial x_{t_i}}{\partial w_k} \ \end{pmatrix} egin{aligned} v_i = v_i(x_1, \dots, x_{t_i}) \ rac{\partial v_i}{\partial w_k} = \sum_{j=1}^{t_i} rac{\partial v_i}{\partial x_j} rac{\partial x_j}{\partial w_k} \end{aligned}$$