$$\begin{array}{c} w_1 \\ \hline \\ w_2 \\ \hline \\ \frac{\partial L}{\partial v_1} \\ \hline \end{array} \begin{array}{c} v_2 = w_2 v_1 \\ \hline \\ v_3 = \sqrt{v_2} \\ \hline \\ \frac{\partial L}{\partial v_2} \\ \hline \end{array}$$