$$w_1$$
  $v_2 = w_2 v_1$   $v_3 = \sqrt{v_2}$   $L = v_2 + v_3$   $v_1$   $\frac{\partial w_1}{\partial w_2}$   $v_1 = \log w_1$   $v_2$   $v_3$   $v_4$   $\frac{\partial v_1}{\partial w_2}$ 

 $=\log w_1$