



$d1 = v \cdot \text{prev\_z}$
$d2 = \text{input}$
$z\_hat\_1 = \alpha \cdot d1 \cdot d2$
$z\_hat\_2 = \beta_1 \cdot d1$
$z\_hat\_3 = \beta_2 \cdot d2$
$z\_hat\_sum = z\_hat\_1 + z\_hat\_2 + z\_hat\_3 + z\_hat\_bias$
$z\_cap = \tanh(z\_hat\_sum)$
$r = \sigma(d2 + r\_bias)$
$z\_1 = (1 - r) \cdot z\_cap$
$z\_2 = r \cdot \text{prev\_z}$
$z = \tanh(z\_1 + z\_2)$