Peephole Connections

$LTM_{t-1}$ → $STM_{t-1}$ → $\sigma$ → $E_t$

$\times$ → $LTM_{t-1} \cdot \frac{f_t}{t}$

w/ the added edge: $f_t = \sigma(W[LTM_{t-1}, STM_{t-1}, E_t] + b_f)$

we are trying to add $LTM_{t-1}$ to the formula for computing the forget factor.

$LTM_{t-1}$ → $\times$ → $+$ → $\times$ → $LTM_t$

$STM_{t-1}$ → $\sigma$ → $\sigma$ → $\tanh$ → $\tanh$ → $STM_t$

$E_t$
We can add these peephole connections everywhere in the LSTM cell!
Gated Recurrent Unit (GRU)