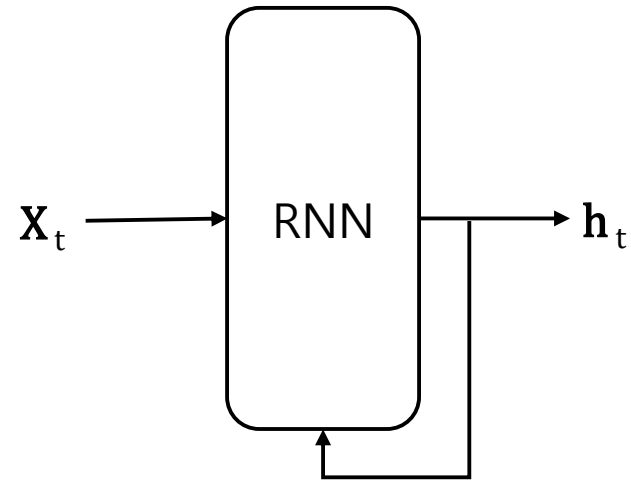
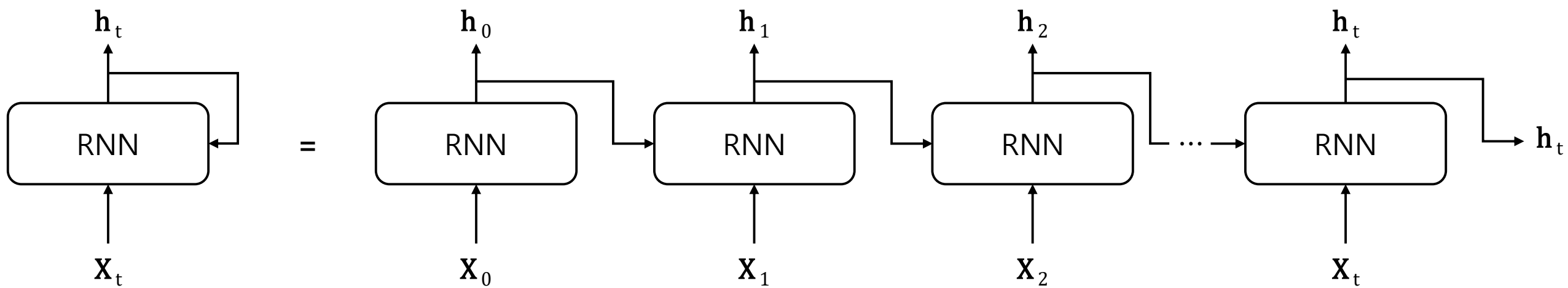


## Recurrent Neural Network (RNN)

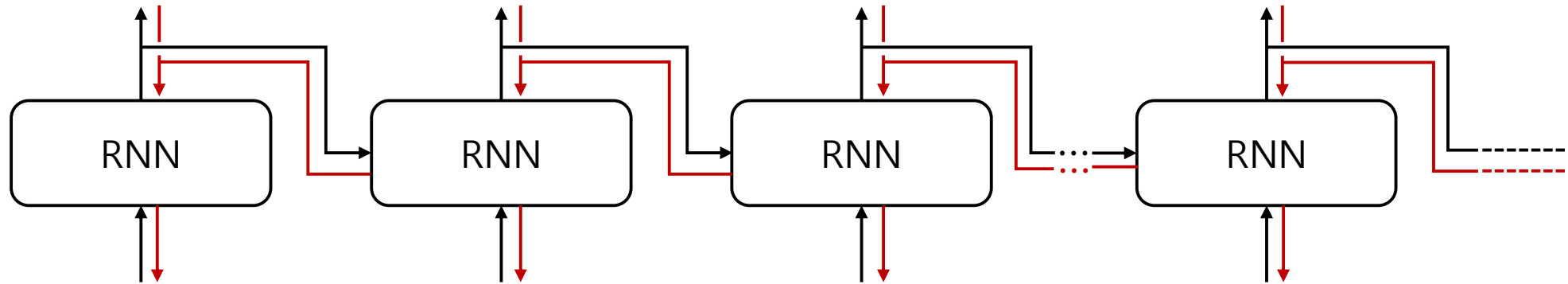


RNN 계층의 순환 구조 펼치기



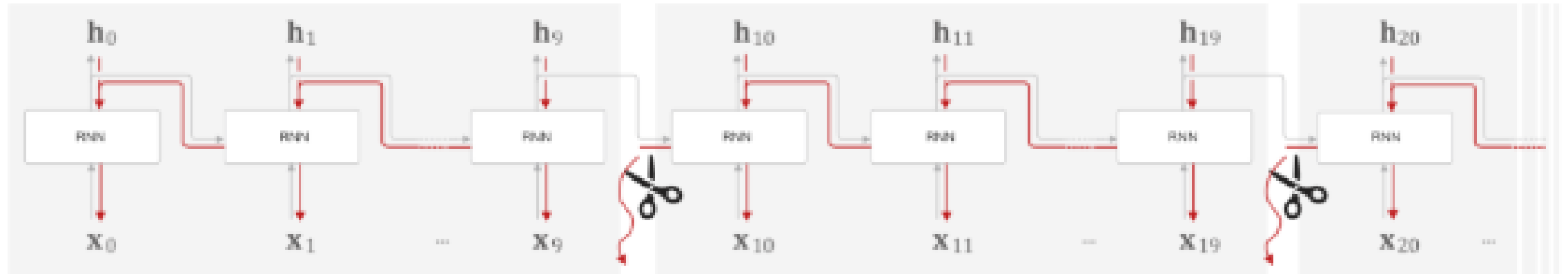
# Recurrent Neural Network (RNN)

## BPTT (Backpropagation Through Time)



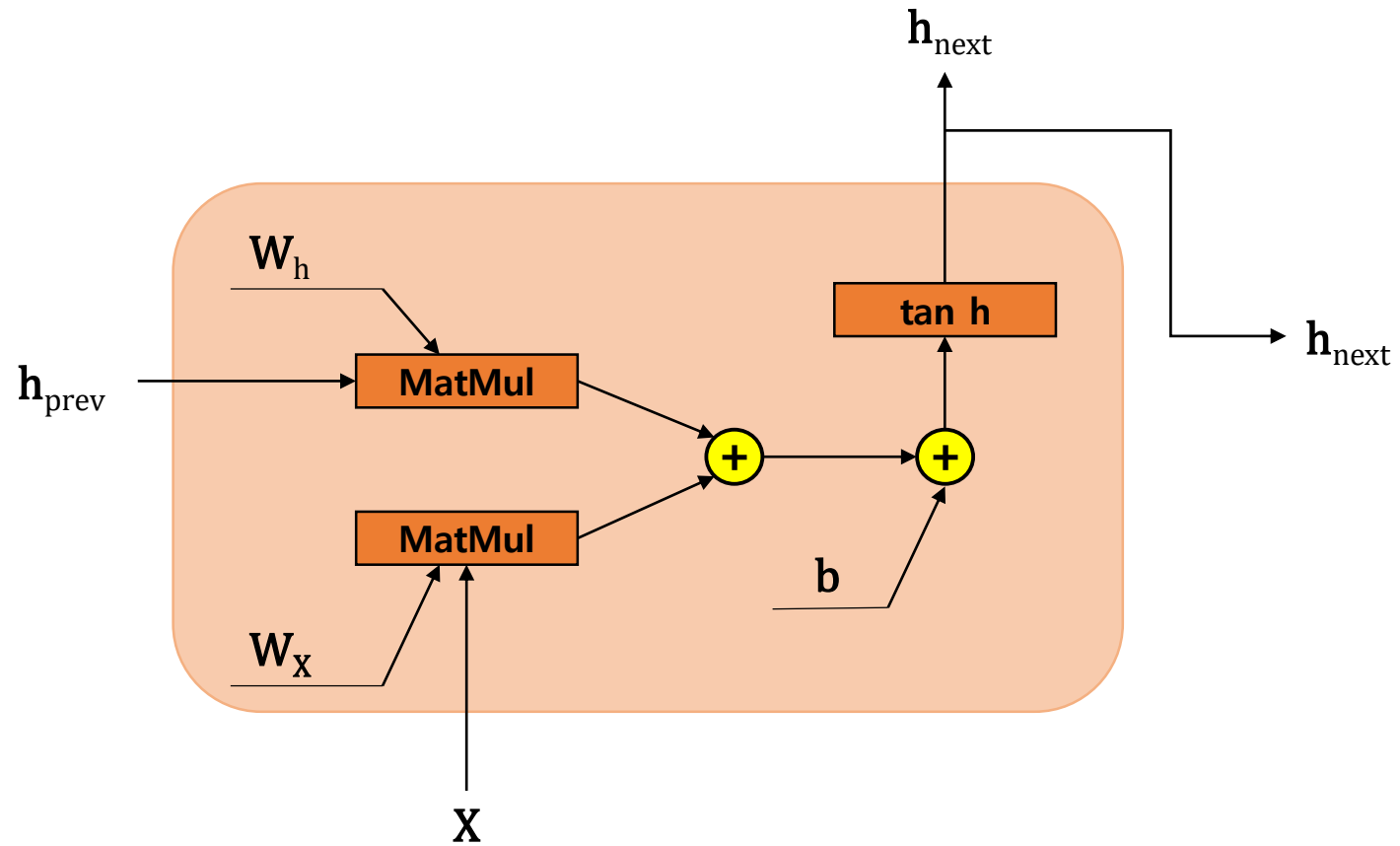
# Recurrent Neural Network (RNN)

## Truncated BPTT



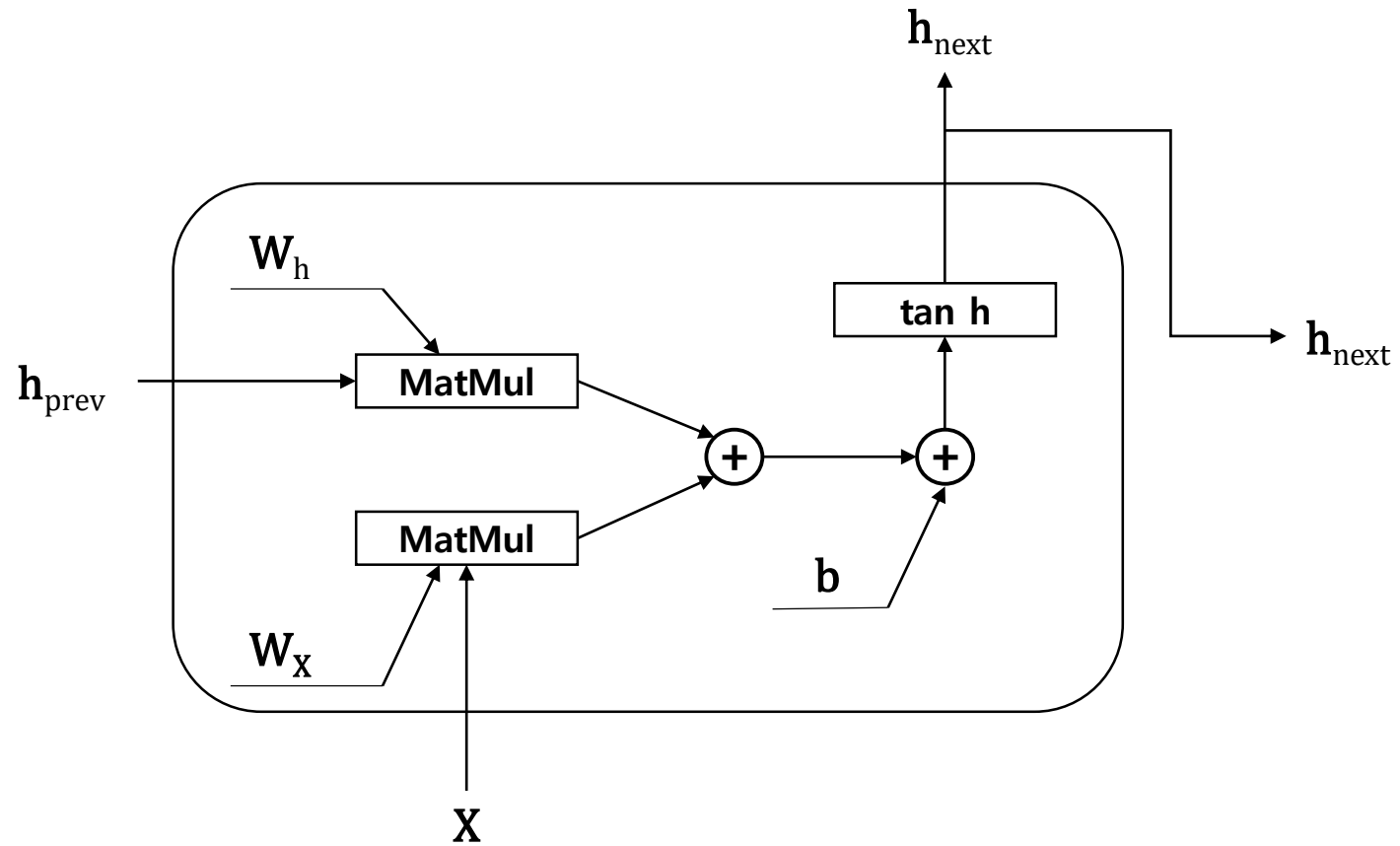
# Recurrent Neural Network (RNN)

forward (순전파)



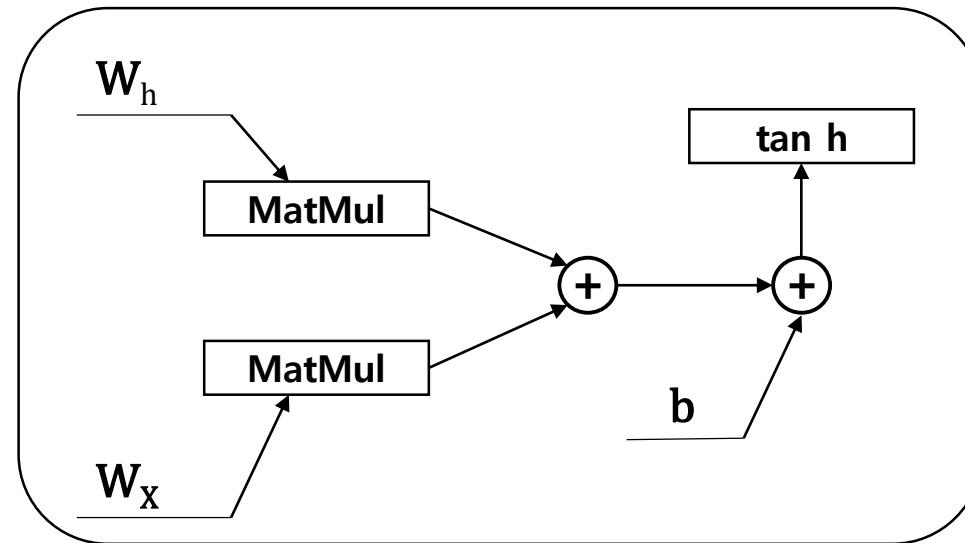
# Recurrent Neural Network (RNN)

forward (순전파)



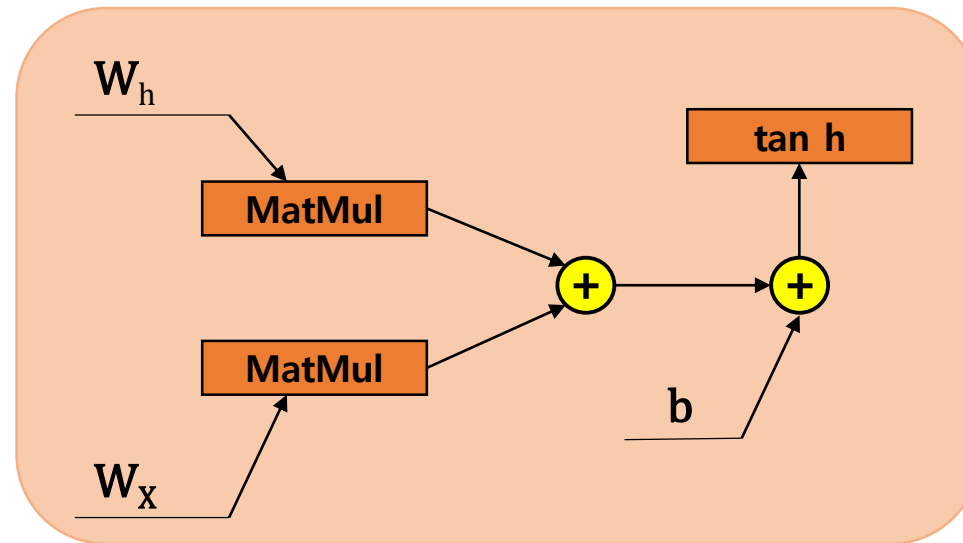
# Recurrent Neural Network (RNN)

forward (순전파)



# Recurrent Neural Network (RNN)

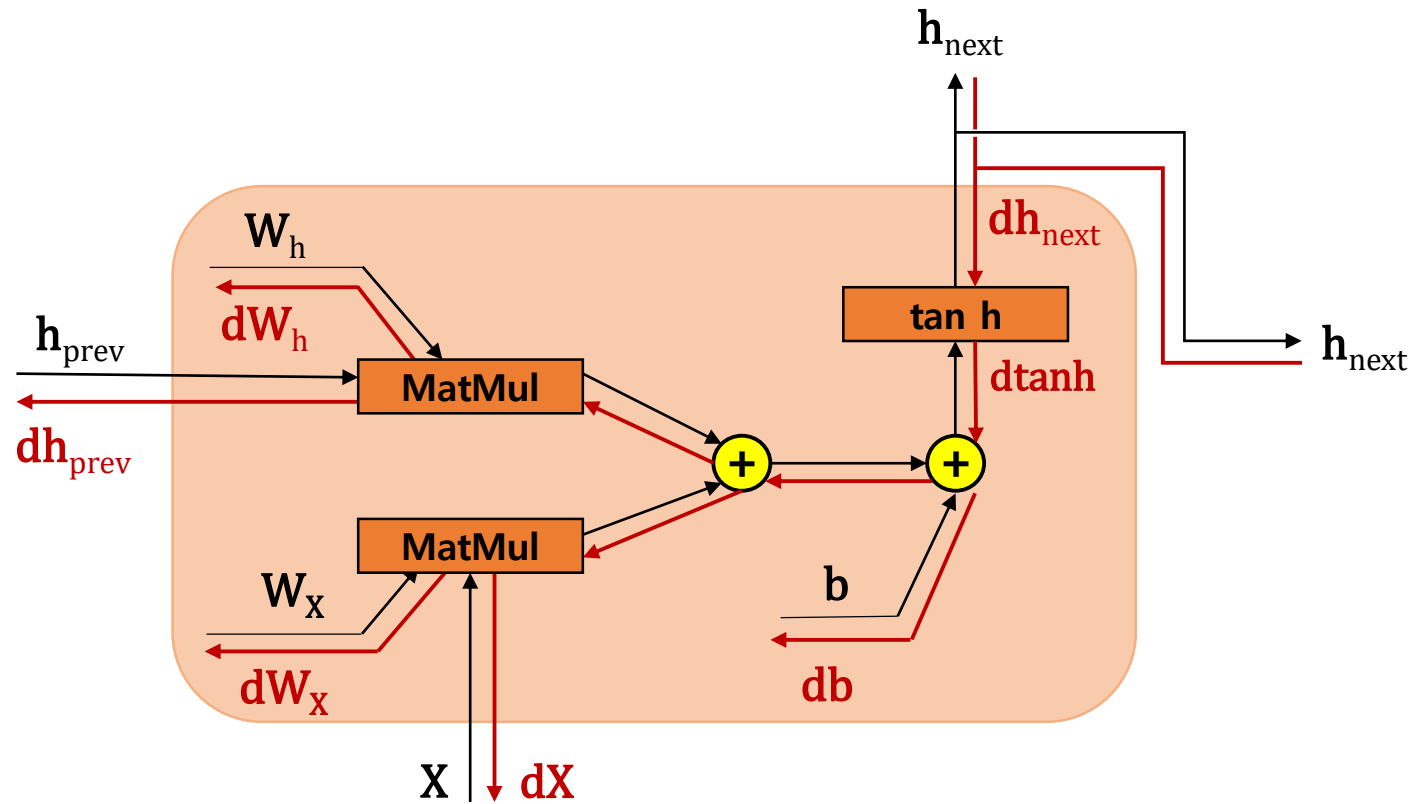
forward (순전파)





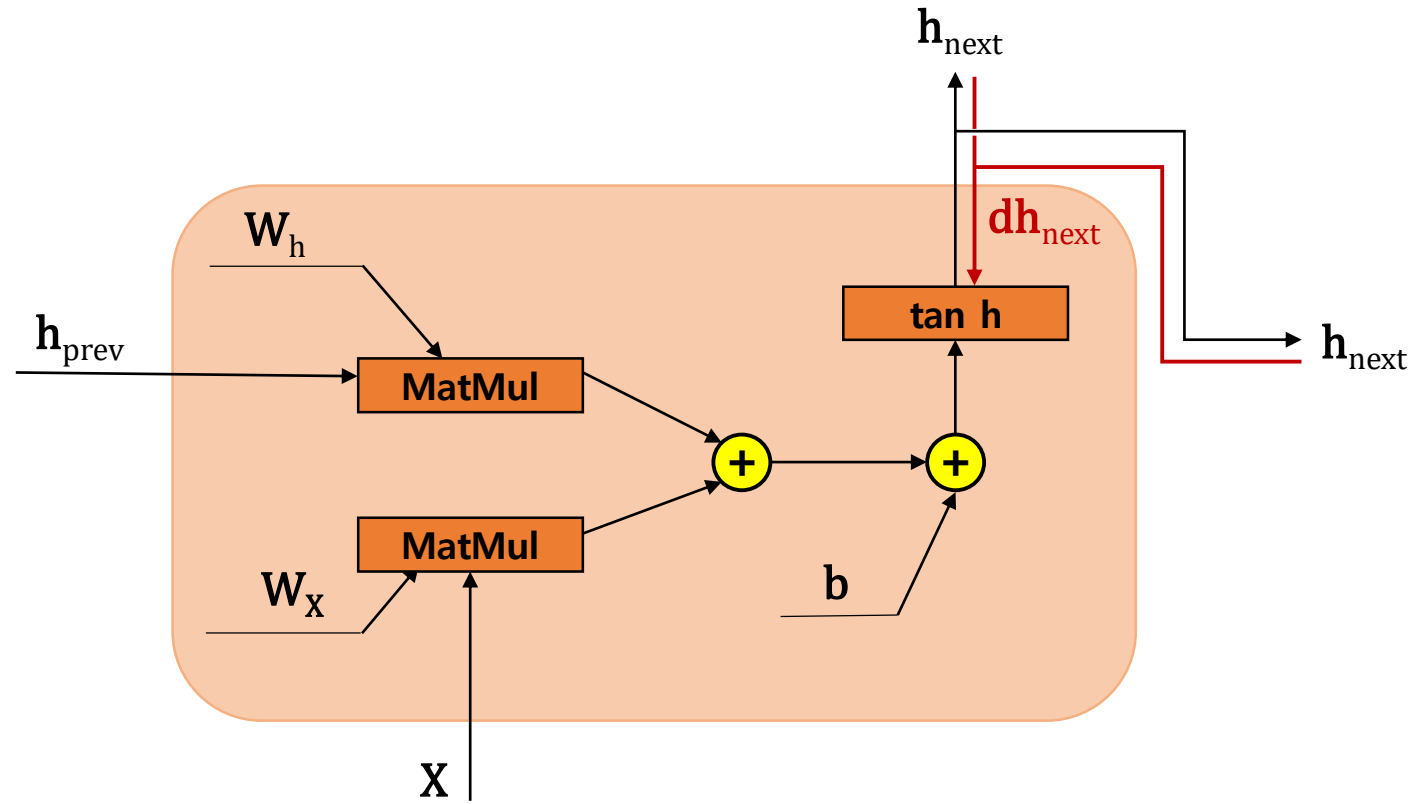
# Recurrent Neural Network (RNN)

backward (역전파)



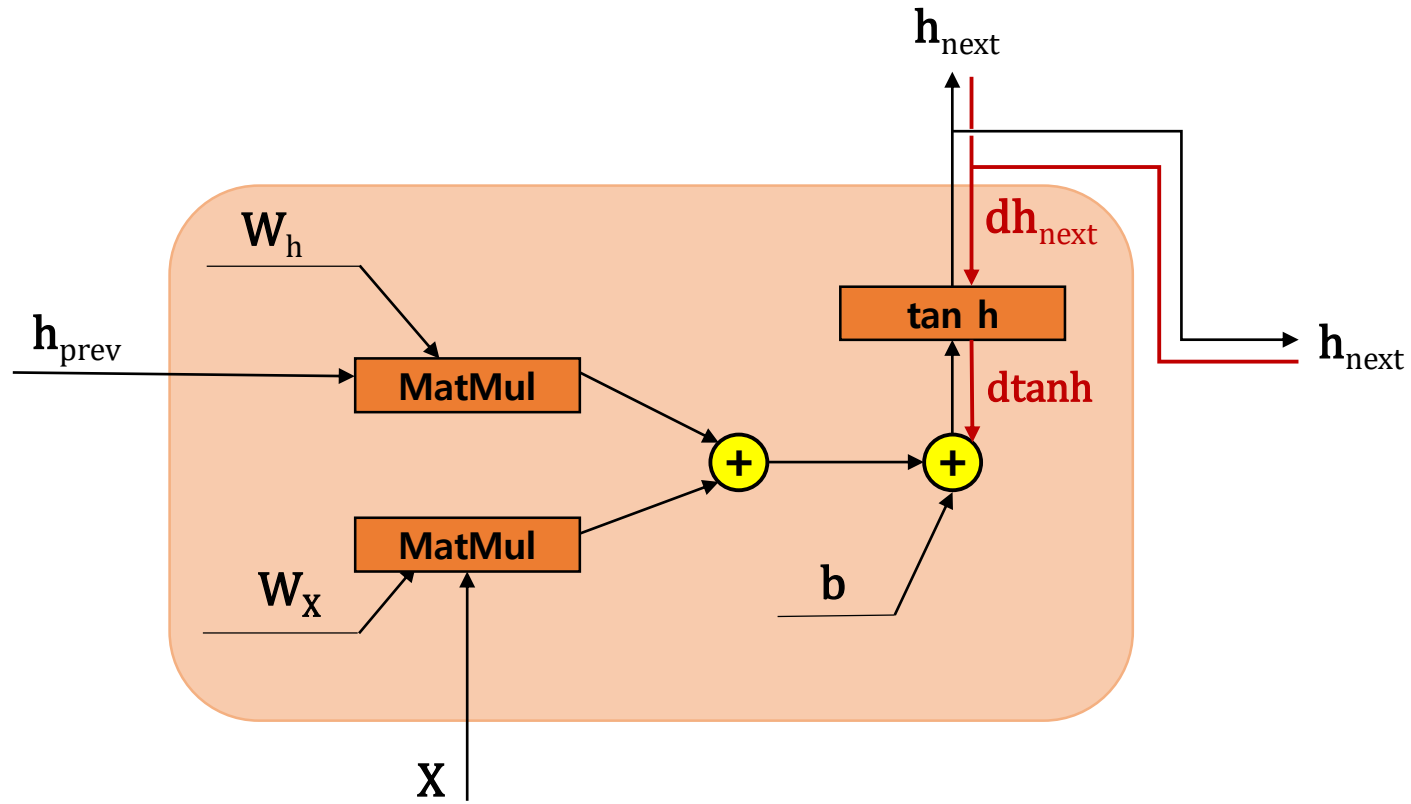
# Recurrent Neural Network (RNN)

backward (역전파) - (1)  $dh_{next}$



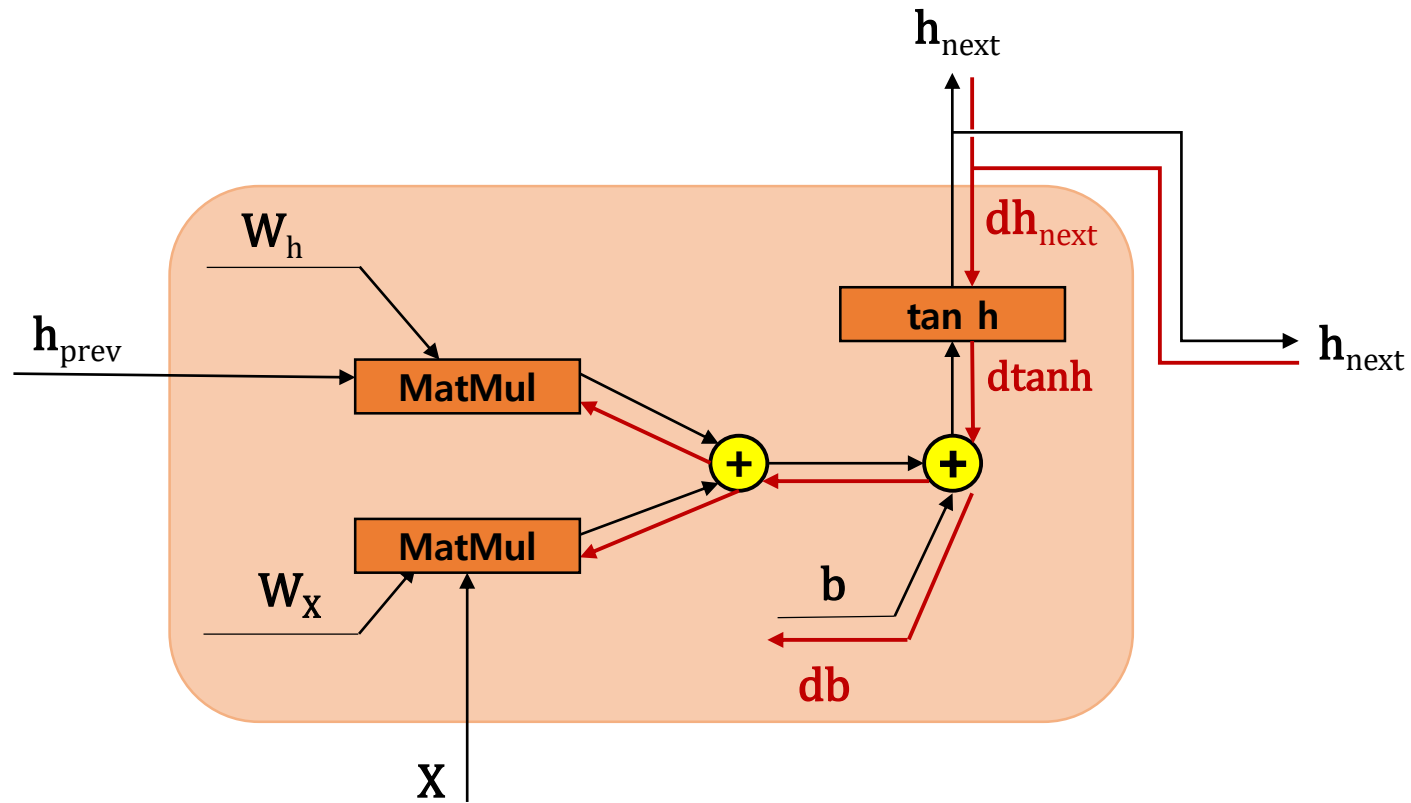
# Recurrent Neural Network (RNN)

backward (역전파) - (2) dtanh



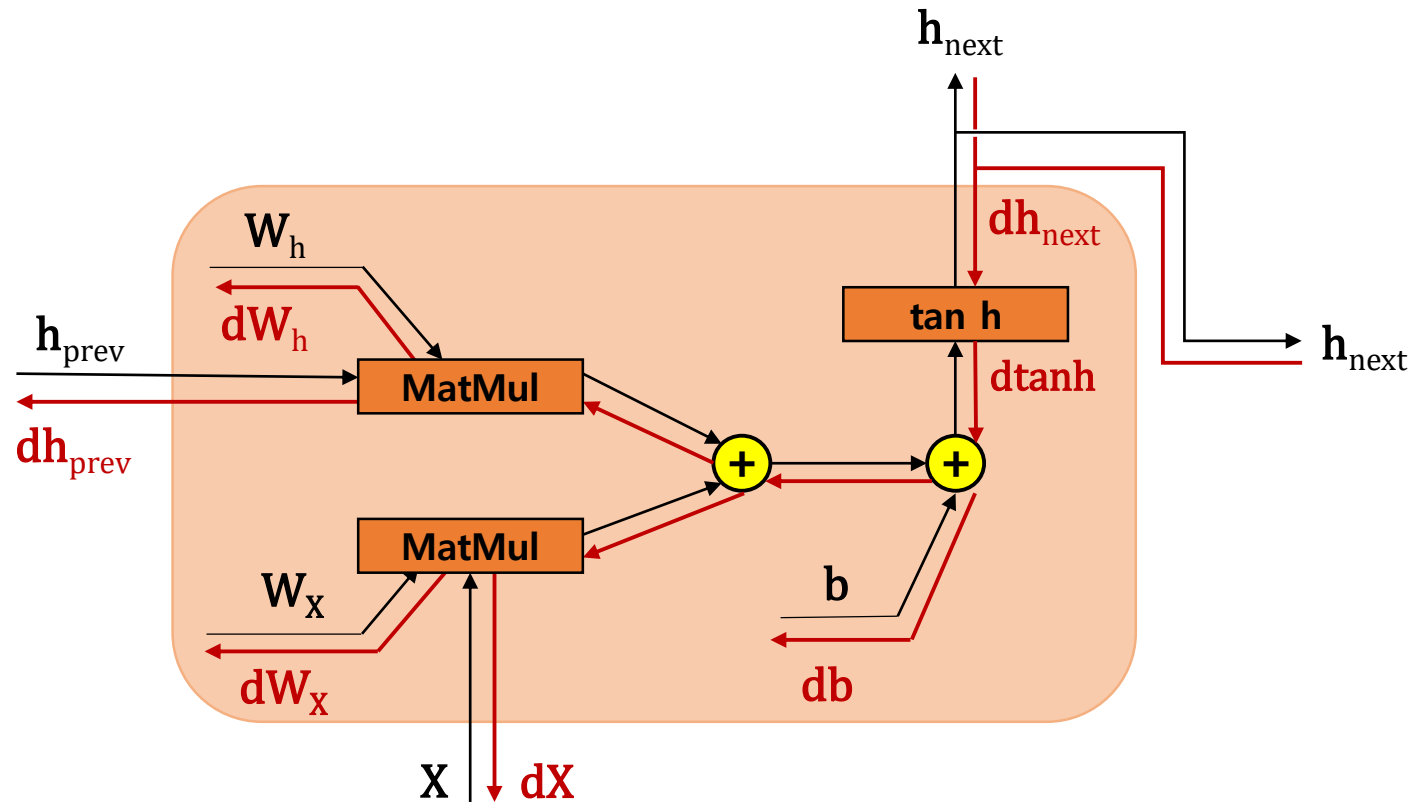
# Recurrent Neural Network (RNN)

backward (역전파) - (3) 덧셈 노드

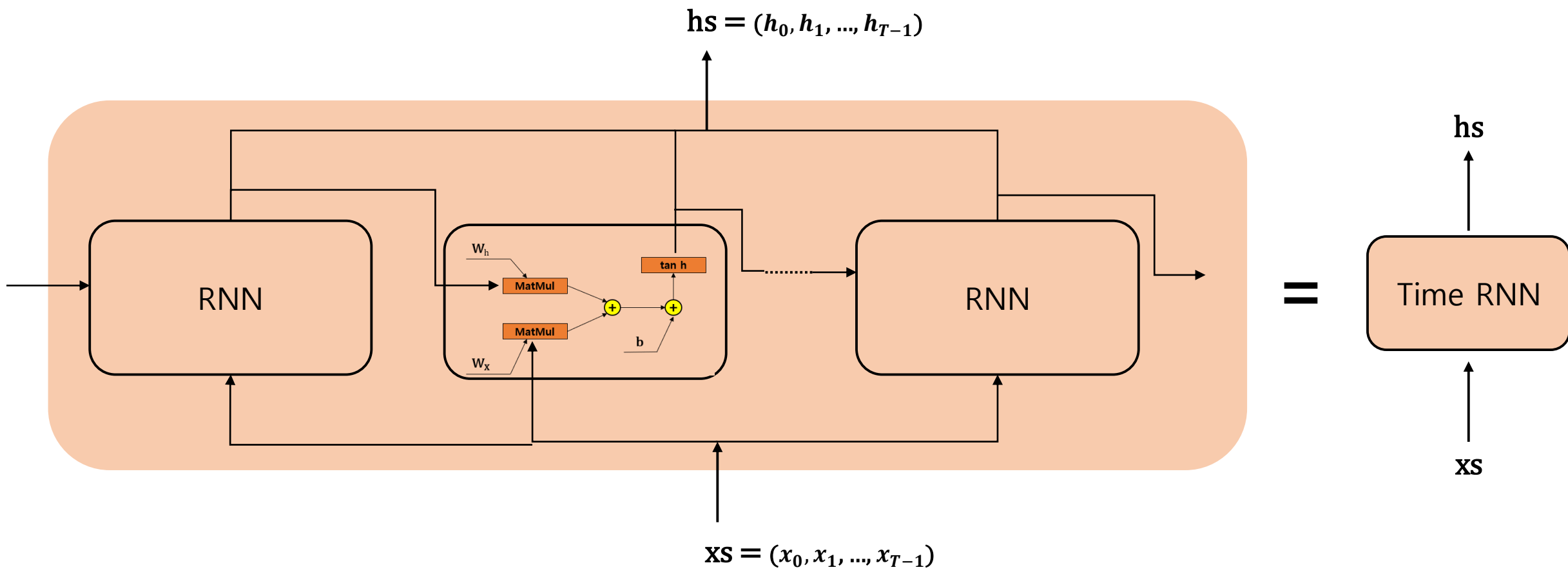


# Recurrent Neural Network (RNN)

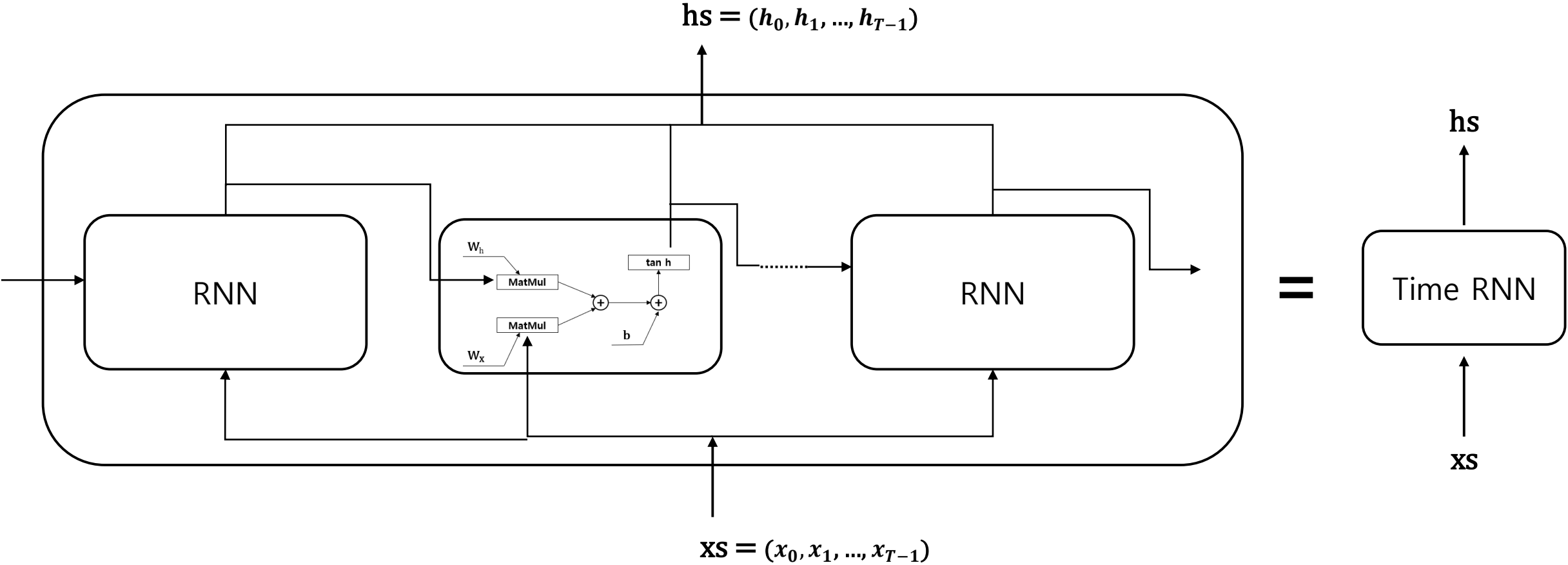
backward (역전파) - (4) 곱셈 노드



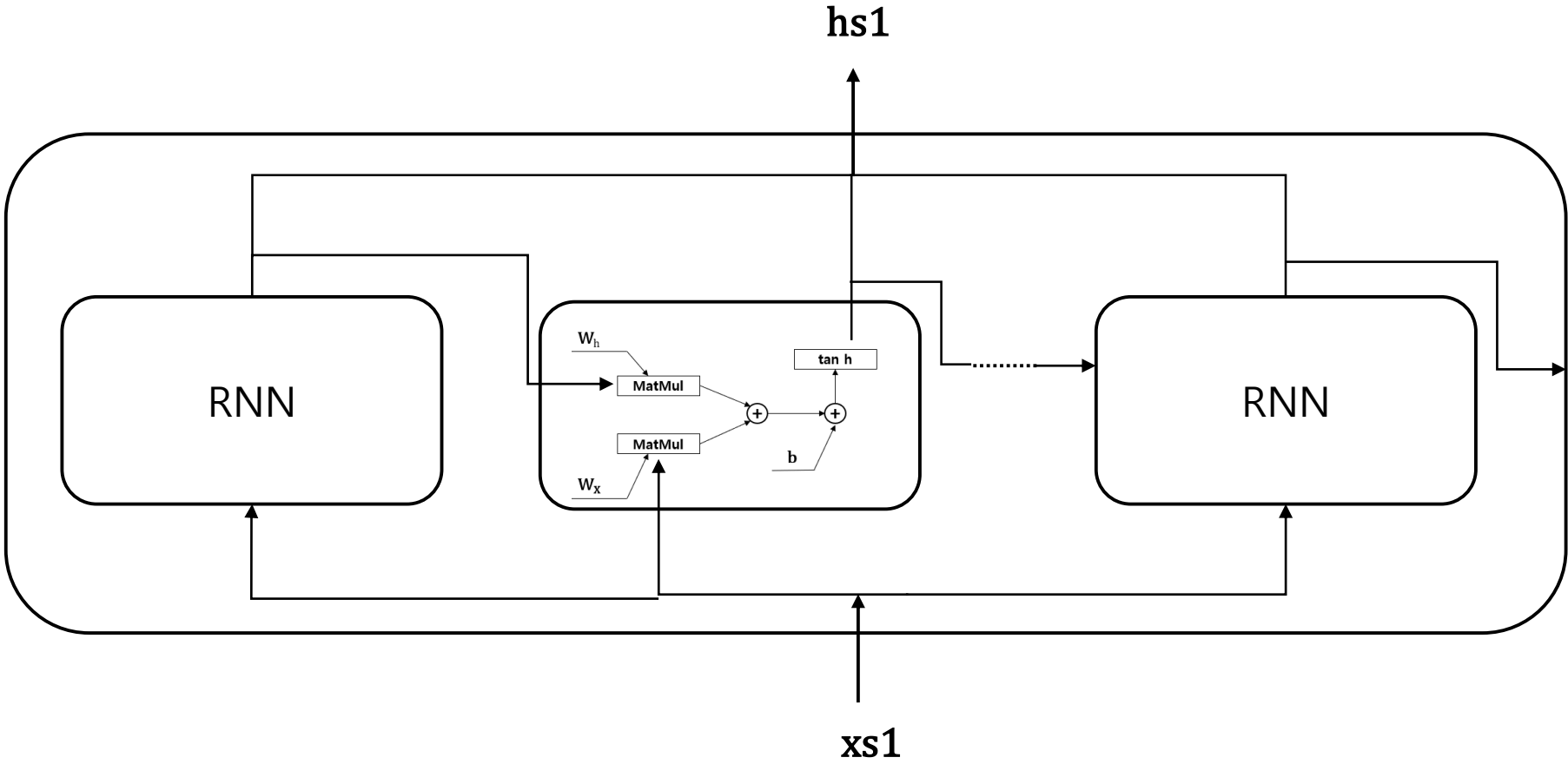
Time RNN 계층과 RNN 계층



Time RNN 계층과 RNN 계층

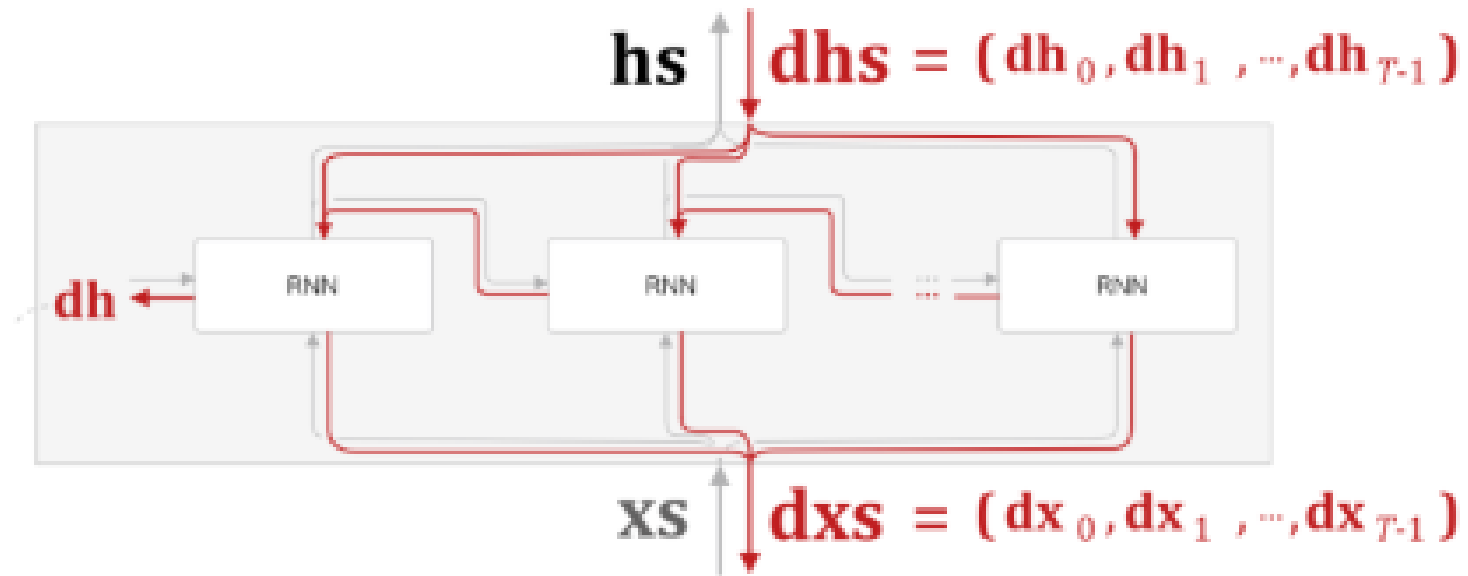


Time RNN 계층과 RNN 계층

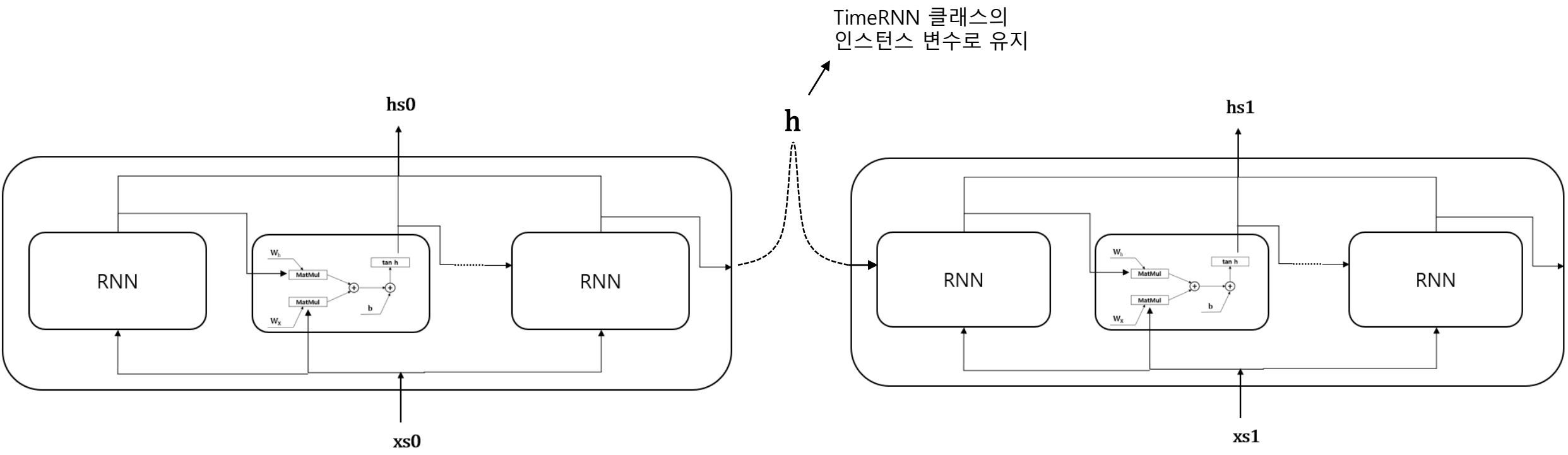




## Time RNN 계층의 역전파



# Time RNN 계층과 RNN 계층



# Long Short Term Memory (LSTM)

forward (순전파)

