deeplearning.ai

# Recurrent Neural Networks

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# Recurrent Neural Network Model

# Why not a standard network?

$x^{<1>}$

$x^{<2>}$

$\vdots$

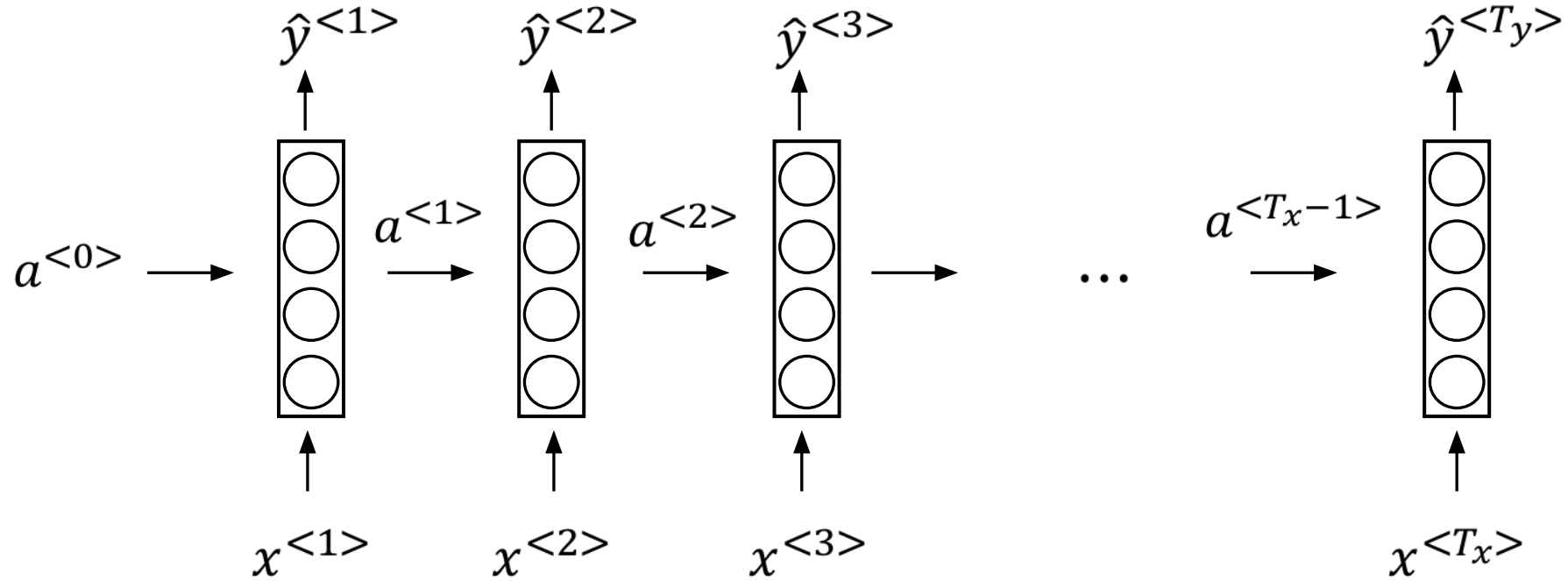$x^{<T_x>}$

$y^{<1>}$

$y^{<2>}$

$\vdots$

$y^{<T_y>}$
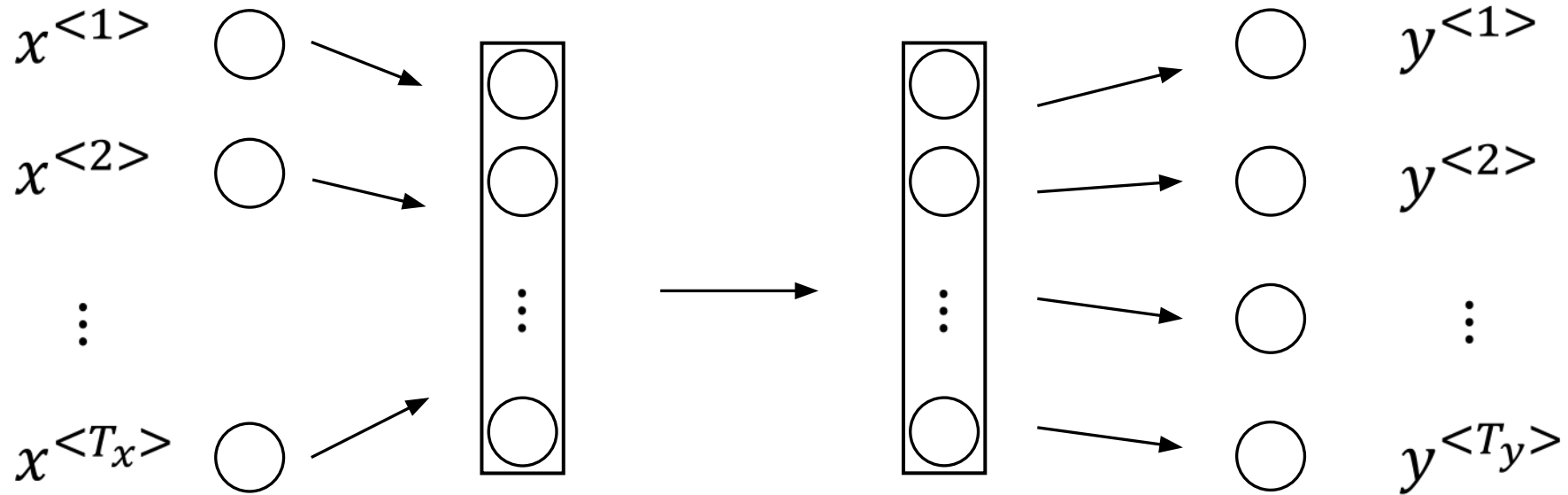
Problems:

- Inputs, outputs can be different lengths in different examples.

- Doesn't share features learned across different positions of text.

# Recurrent Neural Networks

He said, "Teddy Roosevelt was a great President."
He said, "Teddy bears are on sale!"

# Forward Propagation

# Simplified RNN notation

$$a^{<t>} = g(W_{aa}a^{<t-1>} + W_{ax}x^{<t>} + b_a)$$

$$\hat{y}^{<t>} = g(W_{ya}a^{<t>} + b_y)$$