



deeplearning.ai

Recurrent Neural Networks

Different types of RNNs

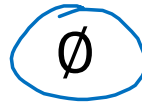
Examples of sequence data

Speech recognition



T_x T_y
 y
“The quick brown fox jumped over the lazy dog.”

Music generation



Sentiment classification

“There is nothing to like in this movie.”



DNA sequence analysis

AGCCCCTGTGAGGAACTAG



AG**CCCCTGTGAGGAACTAG**

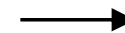
Machine translation

Voulez-vous chanter avec moi?



Do you want to sing with me?

Video activity recognition



Running

Name entity recognition

Yesterday, Harry Potter met Hermione Granger.

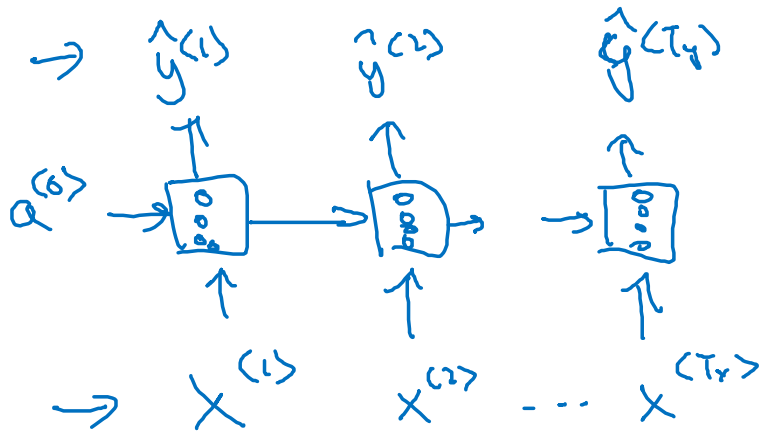


Yesterday, **Harry Potter** met **Hermione Granger**.

Andrew Ng

Examples of RNN architectures

$$T_x = T_y$$

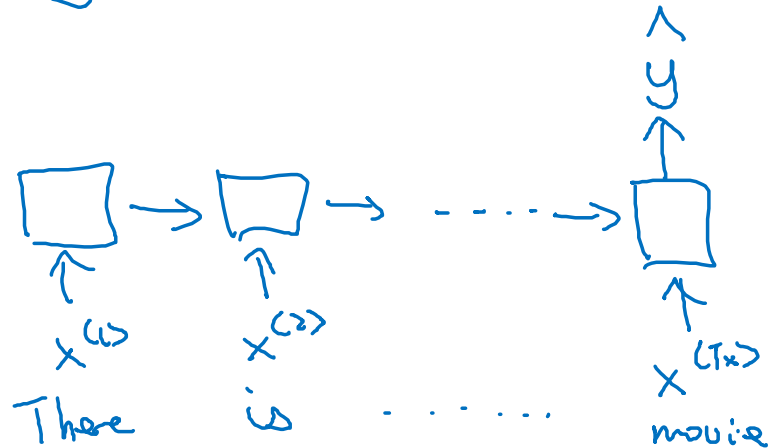


Many-to-many

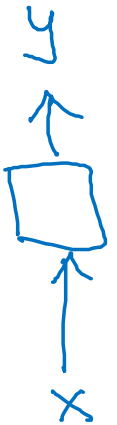
Sentiment classification

$x = \text{text}$

$y = 0/1 \quad 1 \dots 5$

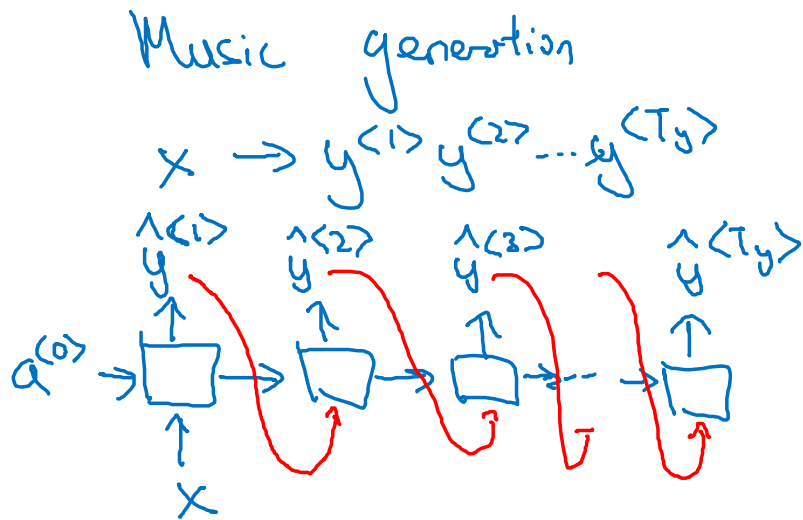


Many-to-one



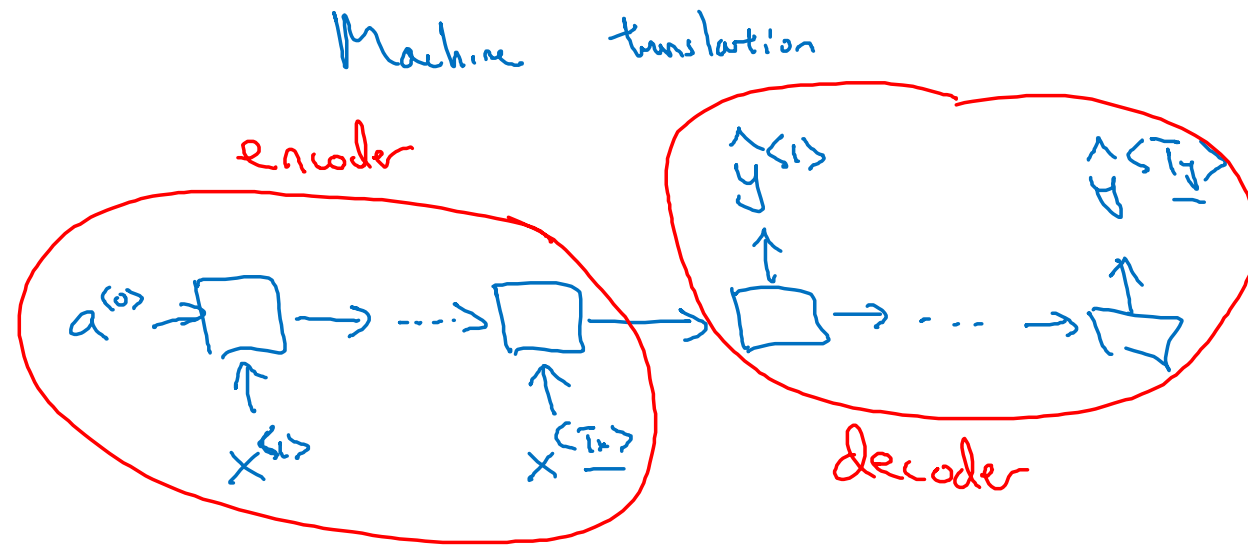
One-to-one

Examples of RNN architectures



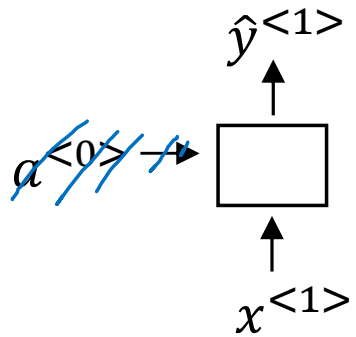
One-to-many

$$x = \phi$$

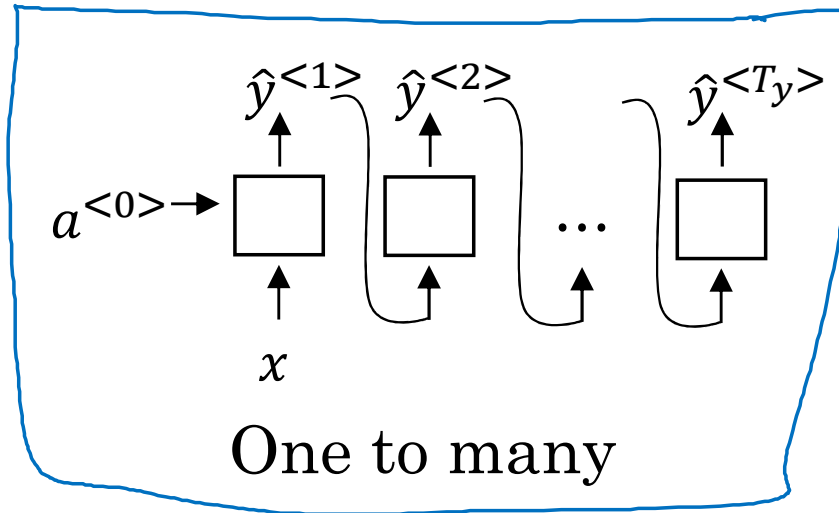


Many-to-many

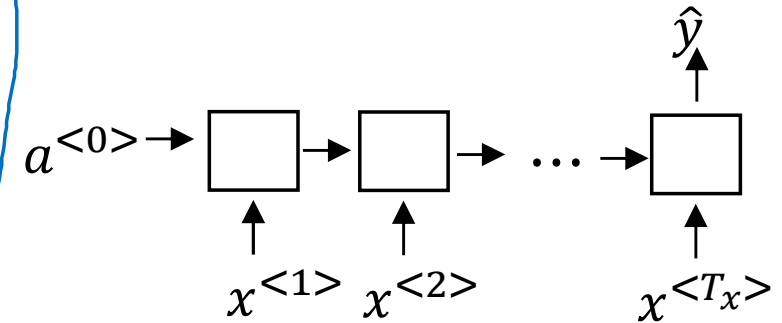
Summary of RNN types



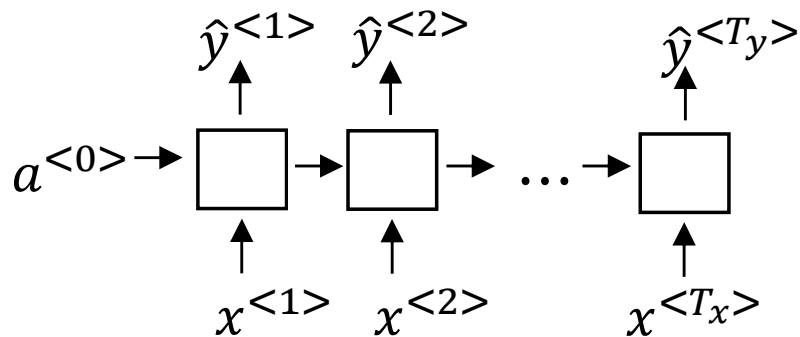
One to one



One to many

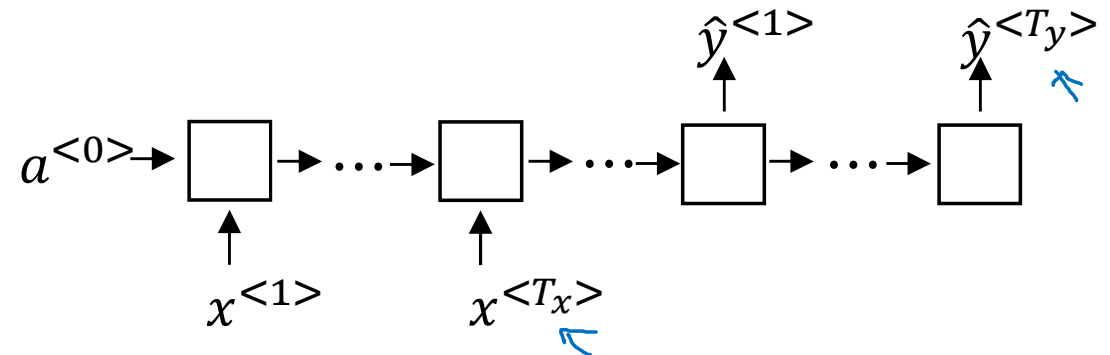


Many to one



Many to many

$T_x = T_y$



Many to many