



deeplearning.ai

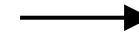
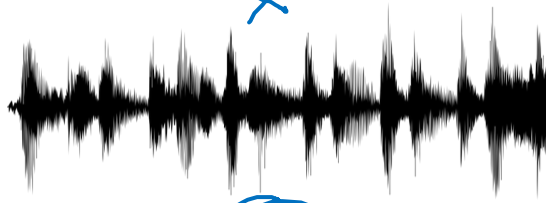
# Recurrent Neural Networks

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## Different types of RNNs

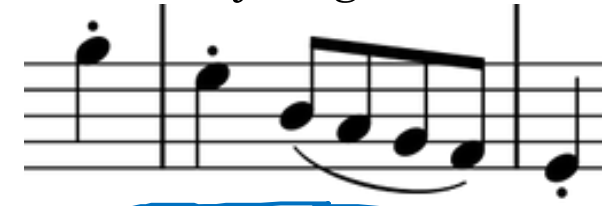
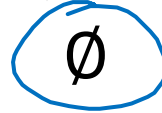
# Examples of sequence data

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

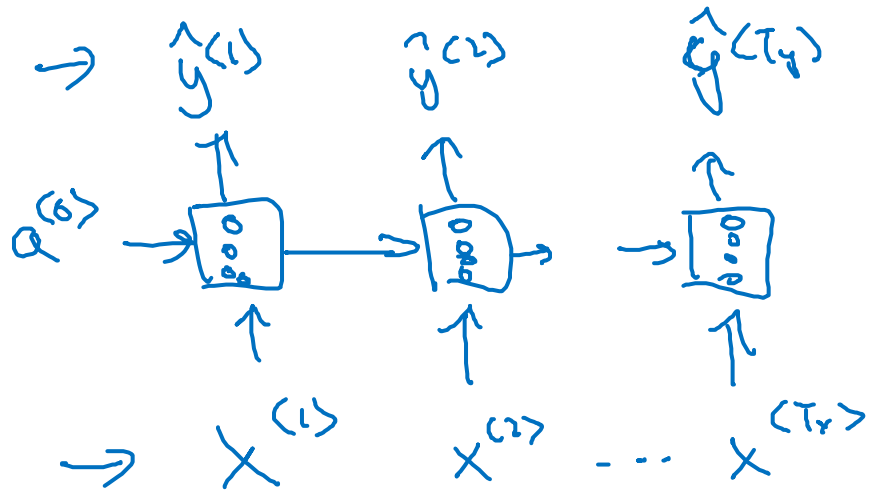
Yesterday, Harry Potter  
met Hermione Granger.



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

# Examples of RNN architectures

$$T_x = T_y$$

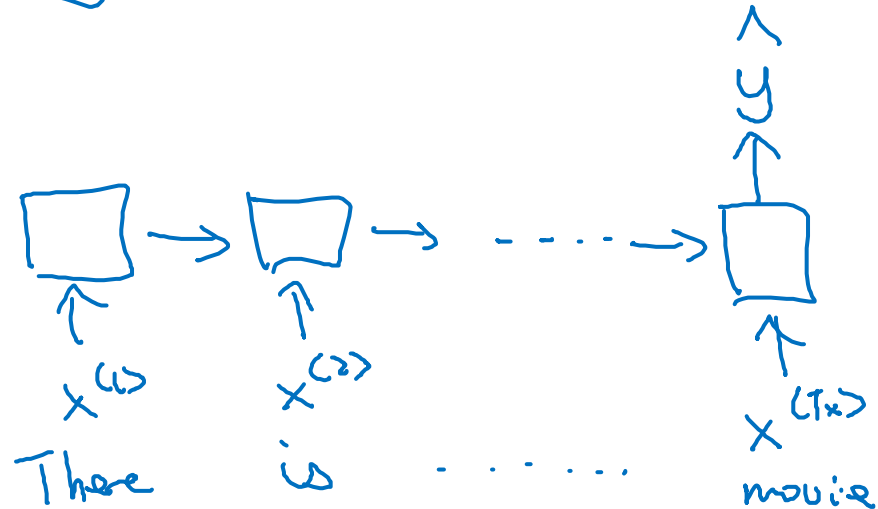


Many-to-many

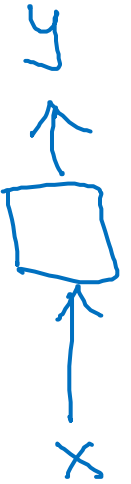
Sentiment classification-

$x = \text{text}$

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

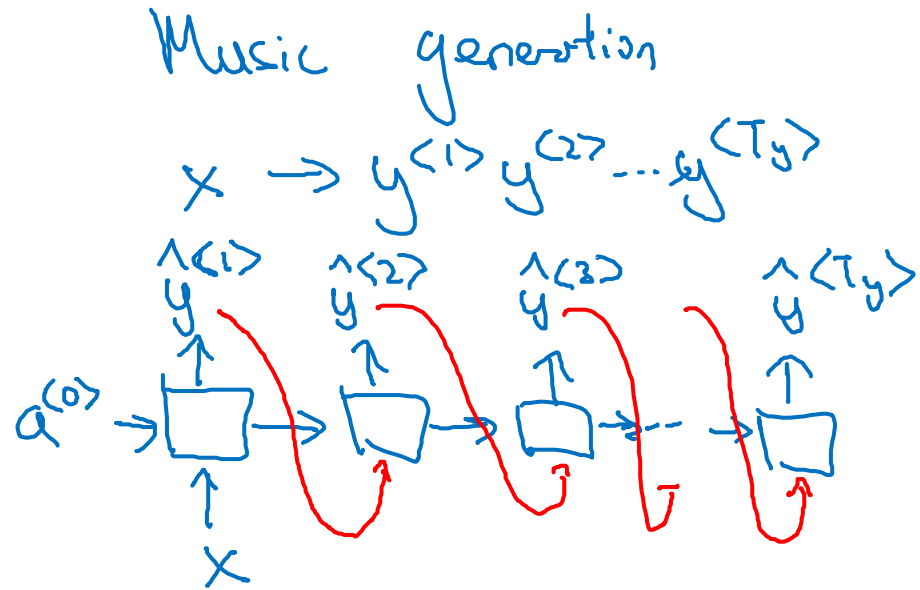


Many-to-one



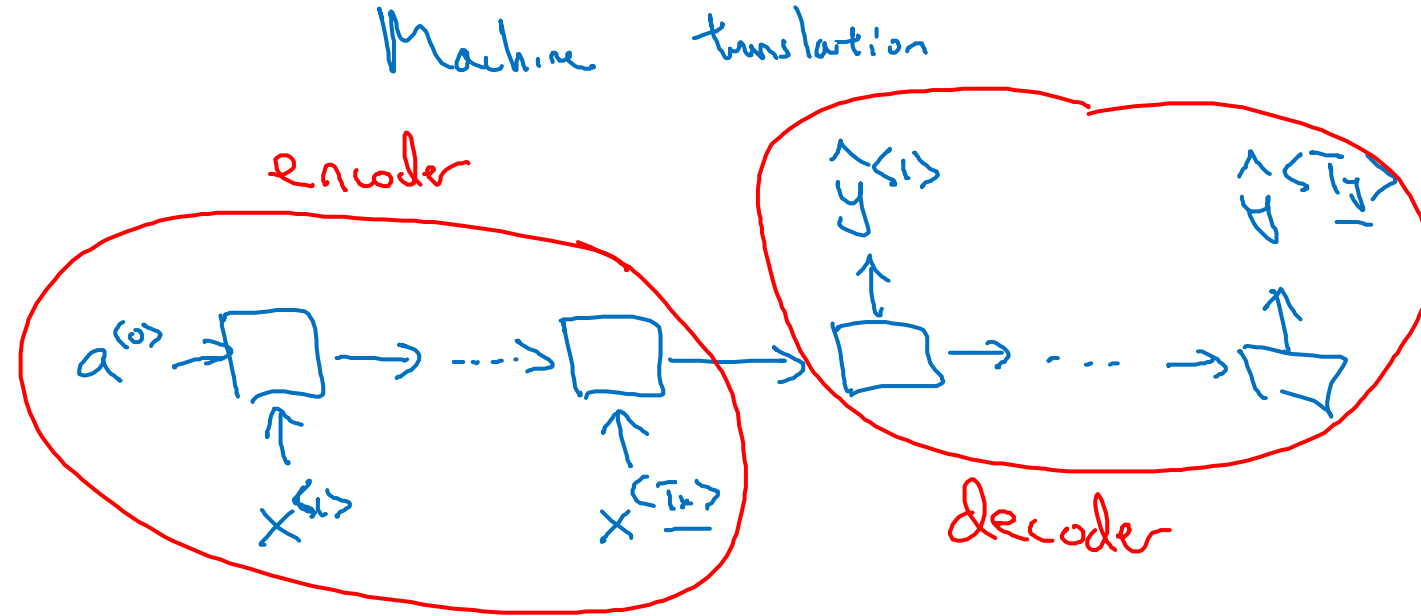
One-to-one

# Examples of RNN architectures



One-to-many

$$x = \phi$$



Many-to-many

# Summary of RNN types

