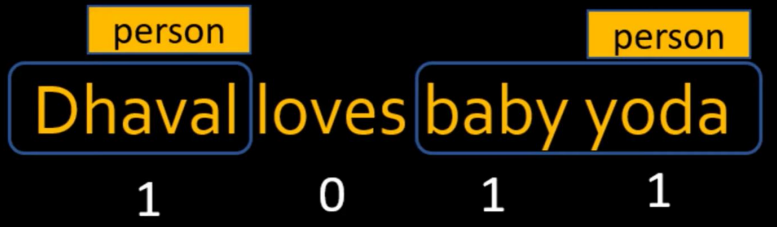
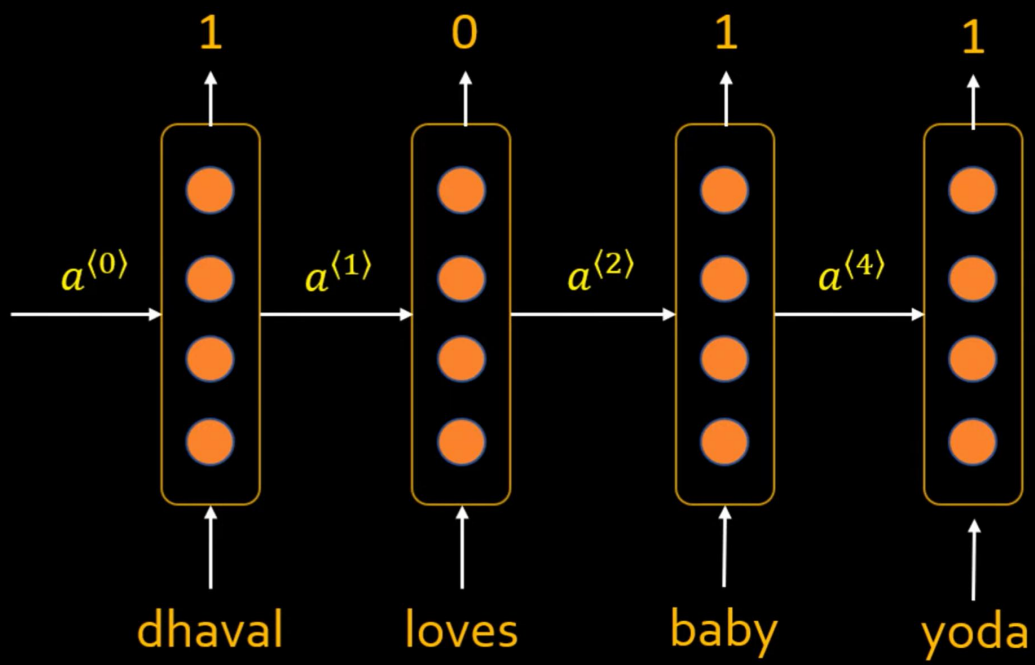
Types of RNN

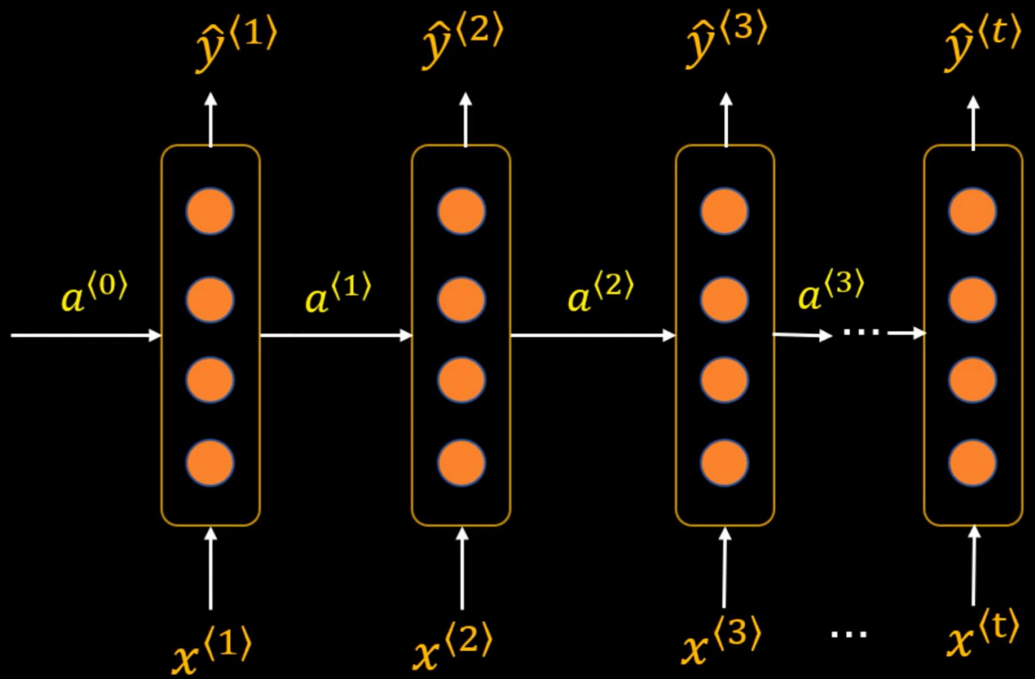
Named Entity Recognition

Dhaval loves baby yoda




1
0
1
1
$a^{\langle 0 \rangle}$
$a^{\langle 1 \rangle}$
$a^{\langle 2 \rangle}$
$a^{\langle 4 \rangle}$
dhaval
loves
baby
yoda

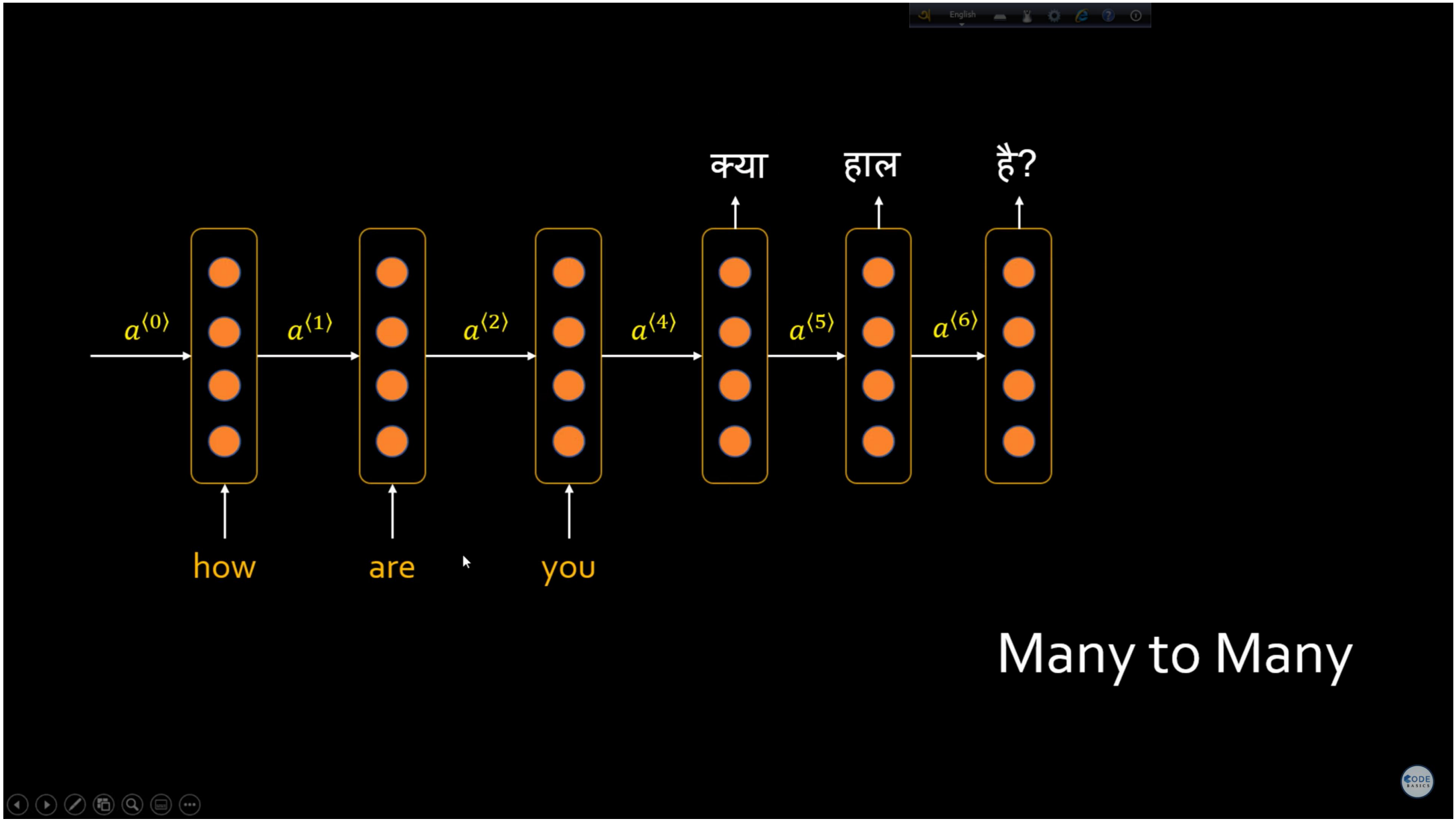
Many to Many

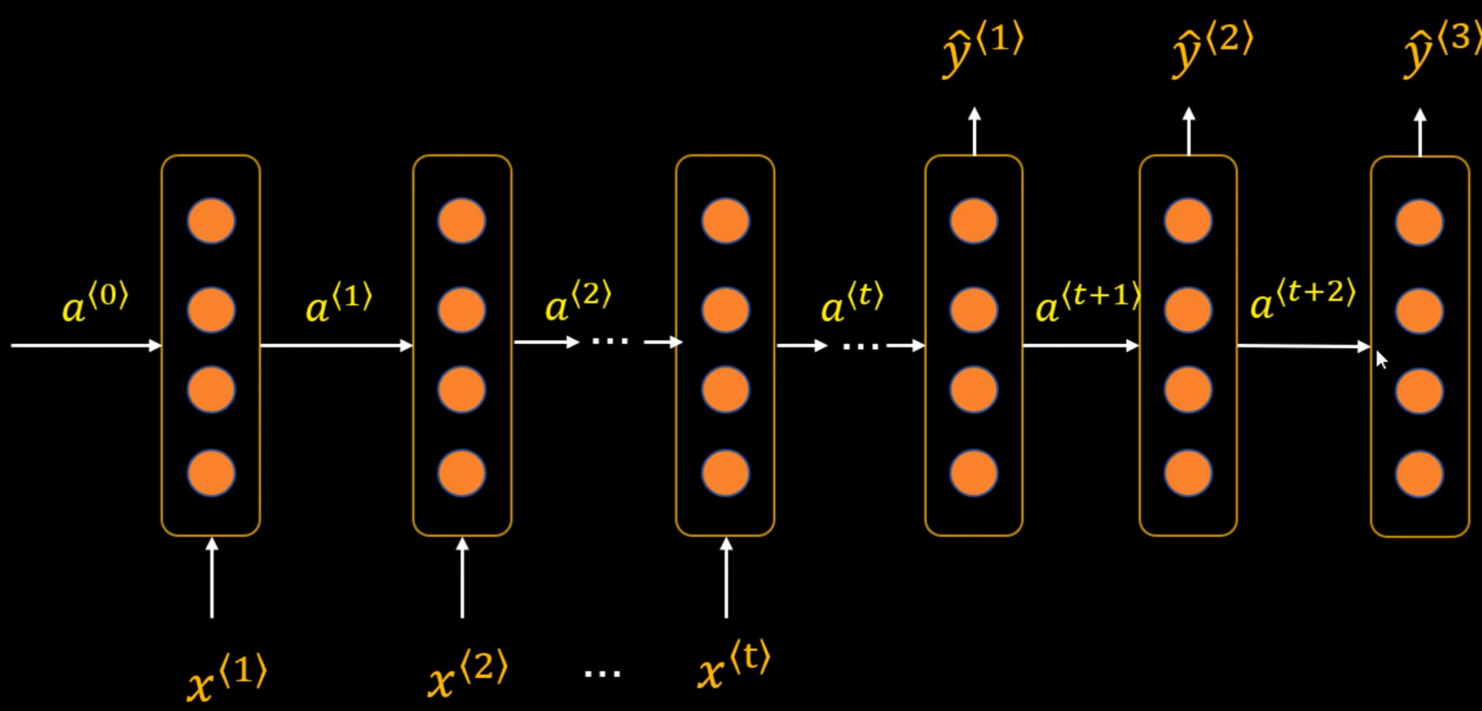

$\hat{y}^{\langle 1 \rangle}$
$\hat{y}^{\langle 2 \rangle}$
$\hat{y}^{\langle 3 \rangle}$
$\hat{y}^{\langle t \rangle}$
$a^{\langle 0 \rangle}$
$a^{\langle 1 \rangle}$
$a^{\langle 2 \rangle}$
$a^{\langle 3 \rangle}$
$x^{\langle 1 \rangle}$
$x^{\langle 2 \rangle}$
$x^{\langle 3 \rangle}$
$x^{\langle t \rangle}$

Many to Many

Language Translation

how are you? → क्या हाल है?


क्या
हाल
है?
$a^{\langle 0 \rangle}$
$a^{\langle 1 \rangle}$
$a^{\langle 2 \rangle}$
$a^{\langle 4 \rangle}$
$a^{\langle 5 \rangle}$
$a^{\langle 6 \rangle}$
how
are
you
Many to Many

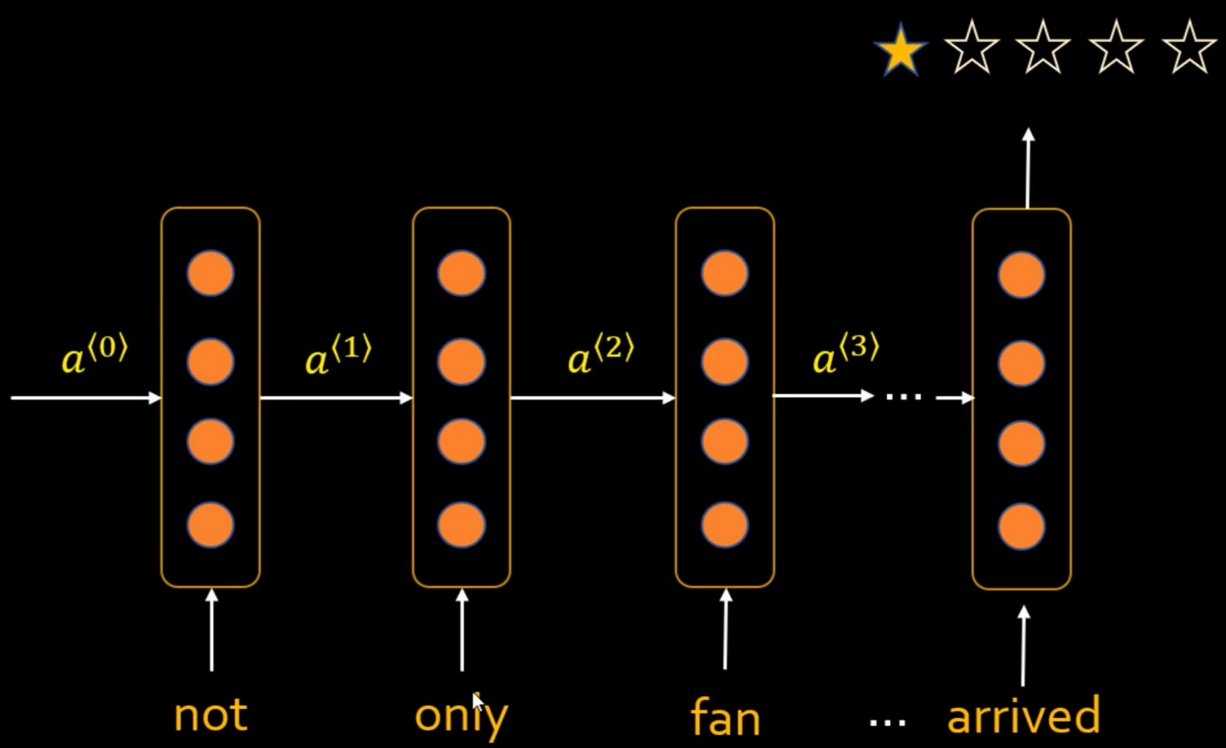

$\hat{y}^{\langle 1 \rangle}$
$\hat{y}^{\langle 2 \rangle}$
$\hat{y}^{\langle 3 \rangle}$
$a^{\langle 0 \rangle}$
$a^{\langle 1 \rangle}$
$a^{\langle 2 \rangle}$
$a^{\langle t \rangle}$
$a^{\langle t+1 \rangle}$
$a^{\langle t+2 \rangle}$
$x^{\langle 1 \rangle}$
$x^{\langle 2 \rangle}$
$x^{\langle t \rangle}$

Many to Many

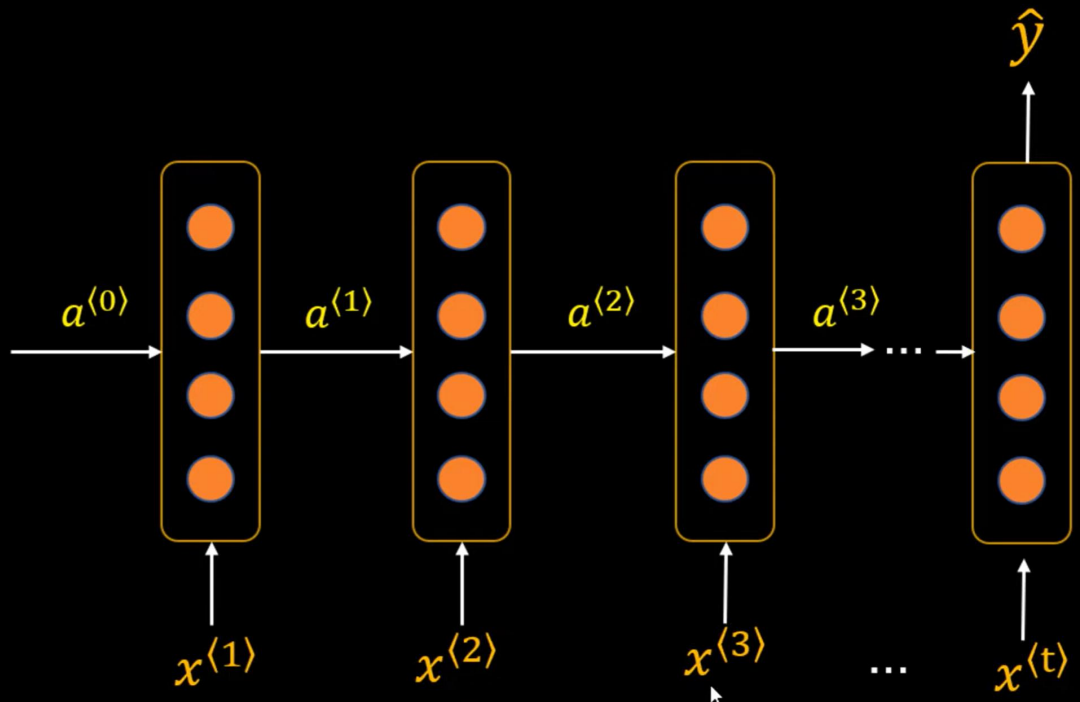
Sentiment Analysis

Not only the fan was expensive, but it was broken when it arrived. →

The fan works like a charm, I wasn't expecting such a good quality at this cheap price →

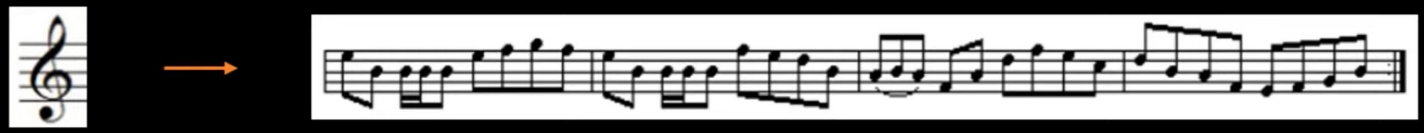

$a^{\langle 0 \rangle}$
$a^{\langle 1 \rangle}$
$a^{\langle 2 \rangle}$
$a^{\langle 3 \rangle}$
...
not
only
fan
...
arrived

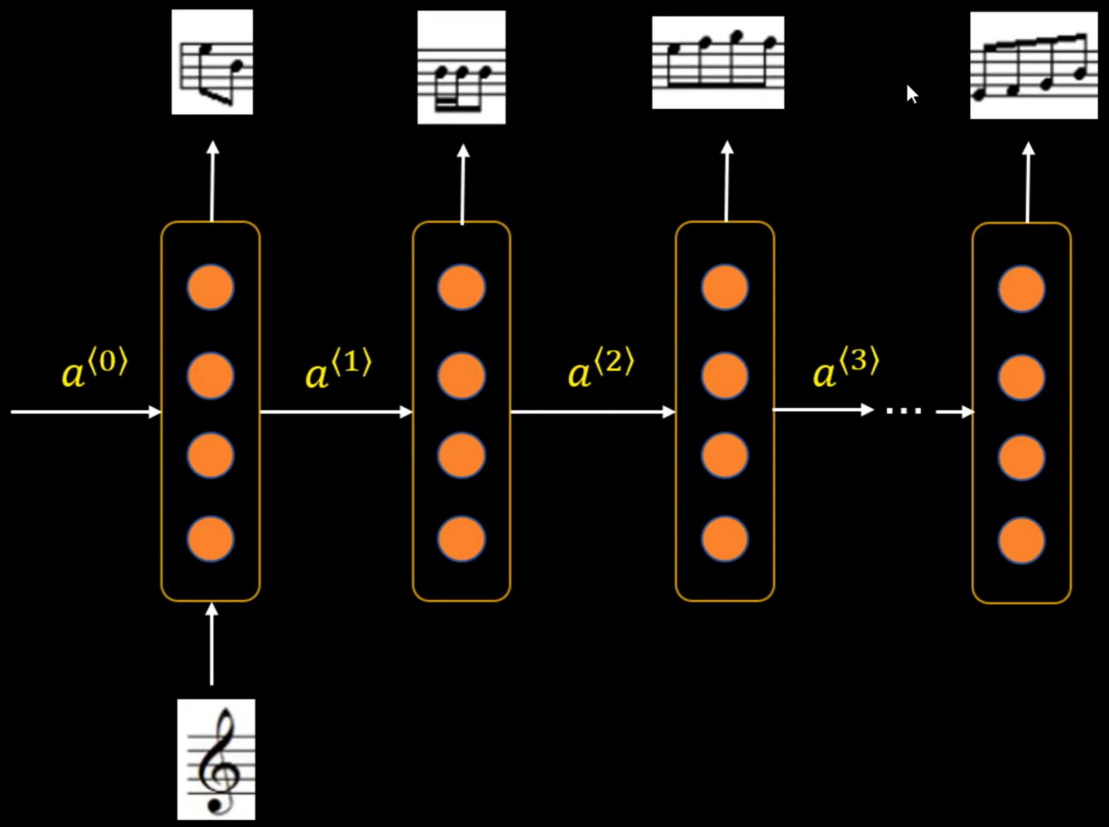
Many to One


$\hat{y}$
$a^{\langle 0 \rangle}$
$a^{\langle 1 \rangle}$
$a^{\langle 2 \rangle}$
$a^{\langle 3 \rangle}$
...
$x^{\langle 1 \rangle}$
$x^{\langle 2 \rangle}$
$x^{\langle 3 \rangle}$
...
$x^{\langle t \rangle}$

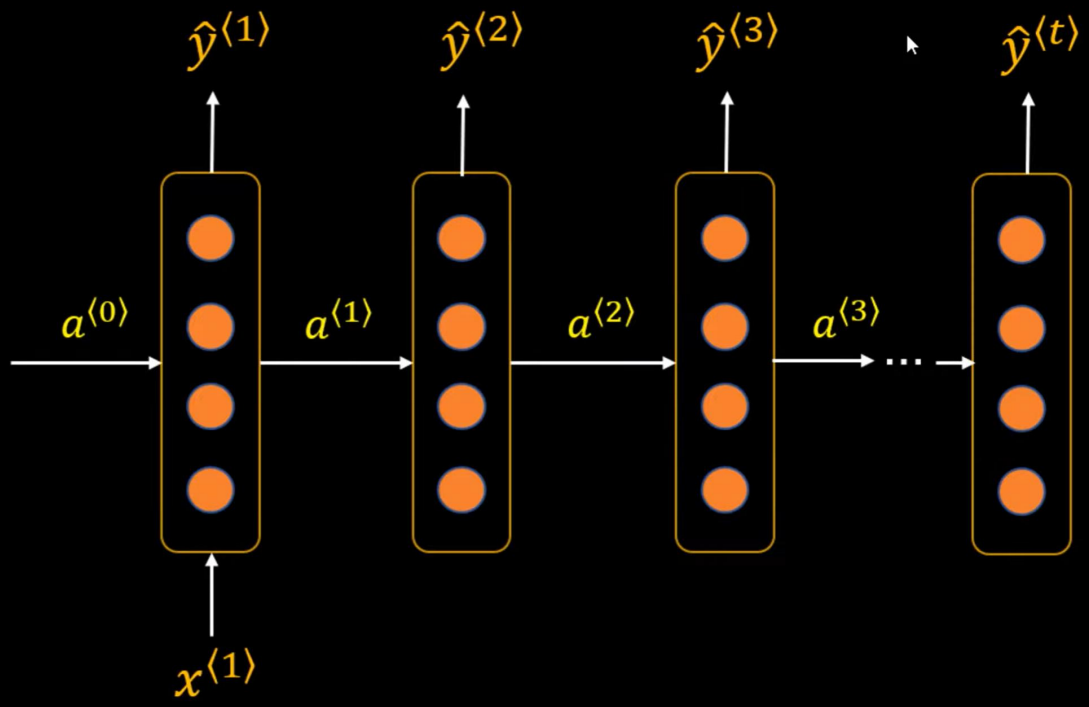
Many to One

Music Generation




$a^{\langle 0 \rangle}$
$a^{\langle 1 \rangle}$
$a^{\langle 2 \rangle}$
$a^{\langle 3 \rangle}$
...

One to Many


$\hat{y}^{\langle 1 \rangle}$
$\hat{y}^{\langle 2 \rangle}$
$\hat{y}^{\langle 3 \rangle}$
$\hat{y}^{\langle t \rangle}$
$a^{\langle 0 \rangle}$
$a^{\langle 1 \rangle}$
$a^{\langle 2 \rangle}$
$a^{\langle 3 \rangle}$
$x^{\langle 1 \rangle}$

One to Many