## horizontal line

Backpropagation in RNN

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# Backpropagation in RNN

| Text | o/p |
| --- | --- |
| Cat mat rat | 1 |
| Rat rat mat | 1 |
| Mat mat cat | 0 |

|  | X | Y |
| --- | --- | --- |
| X1 | [1 0 0] [0 1 0] [0 0 1] | 1 |
| X2 | [0 0 1] [0 0 1] [0 1 0] | 1 |
| X3 | [0 1 0] [0 1 0] [1 0 0] | 0 |



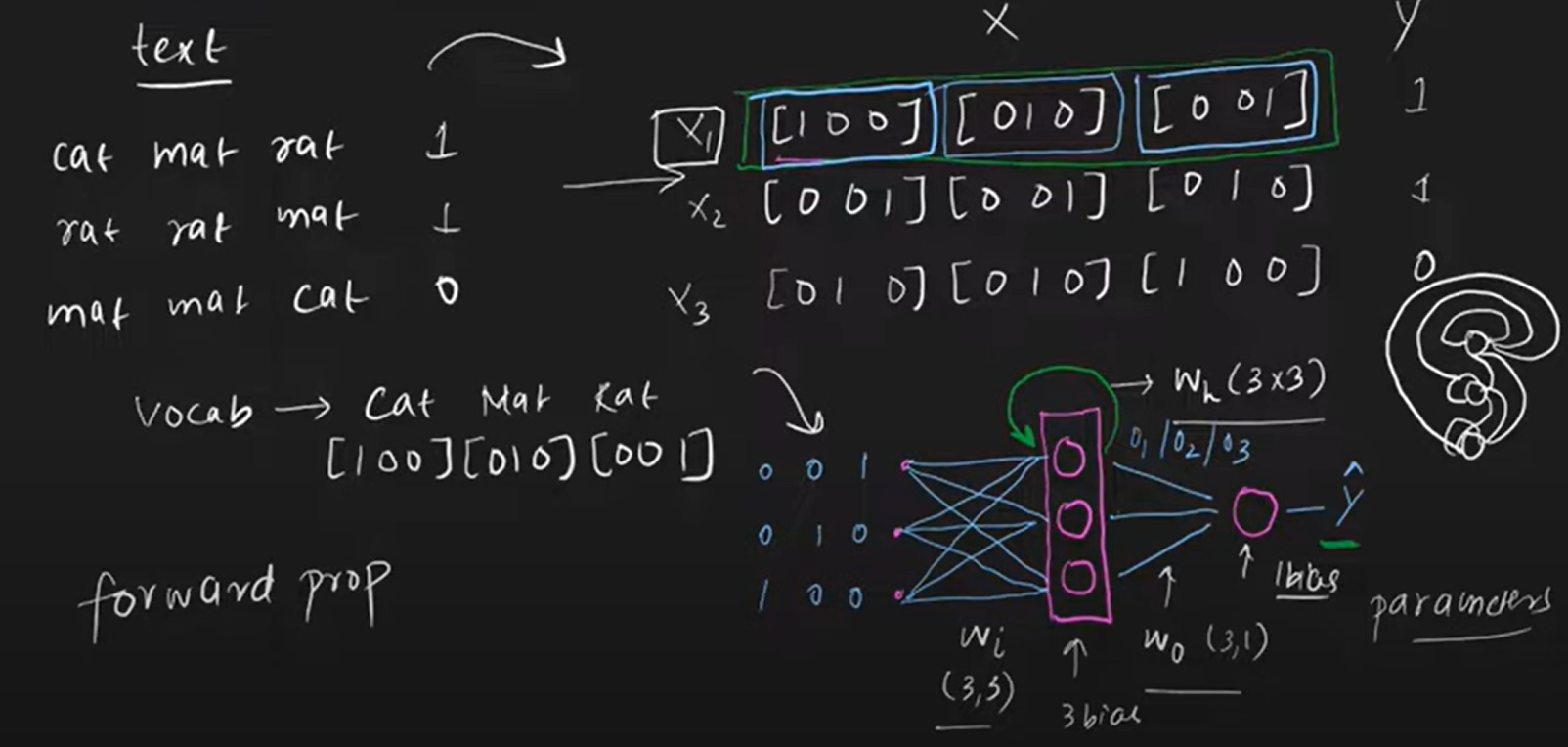
O1 = f(x11wi + OoWh)

O2 = f(x12wi + O1Wh)

O3 = f(x13wi + O2Wh)

Y\_hat =





We need to update the gradients of the different weights Wi, Wh , Wo.

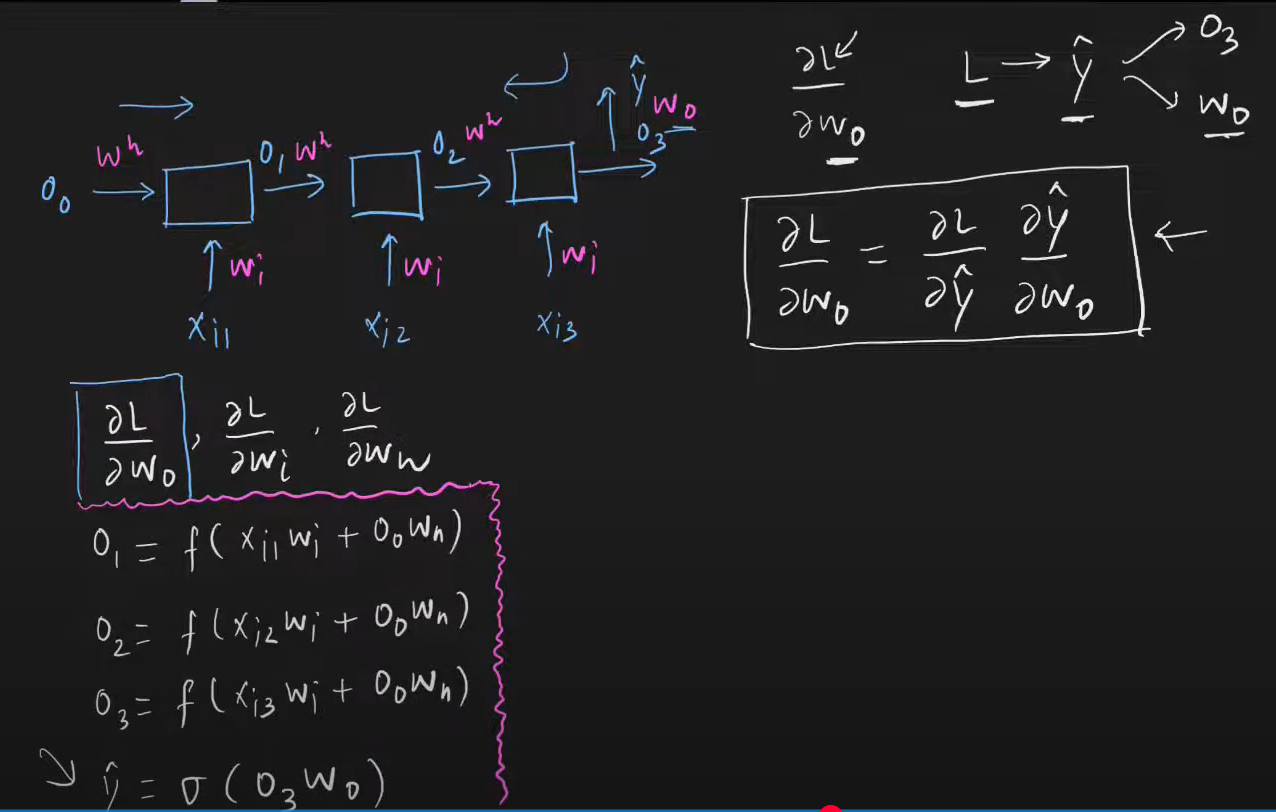
Wi = Wi -

Wh = Wh -

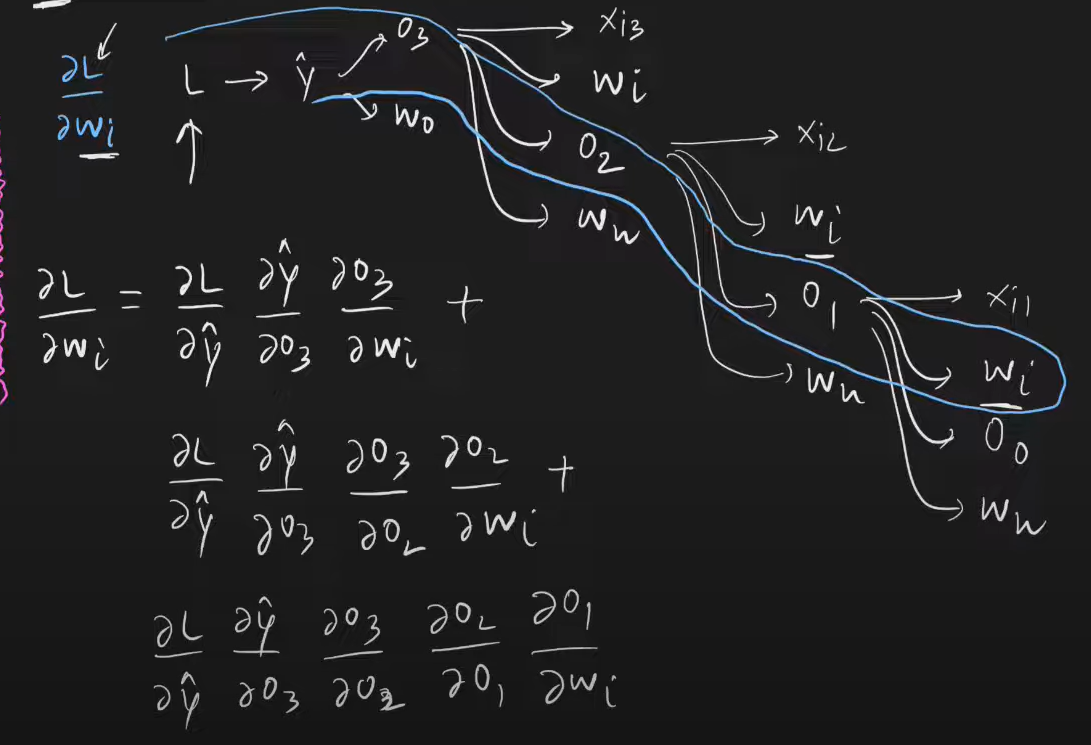
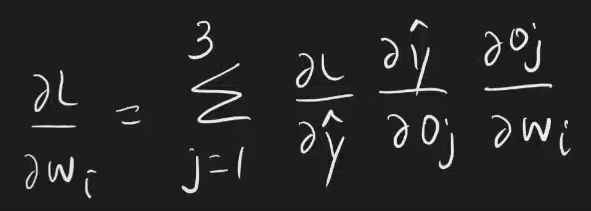
Wo = Wo -

## We need to find out the 3 gradients :

## 



## 



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