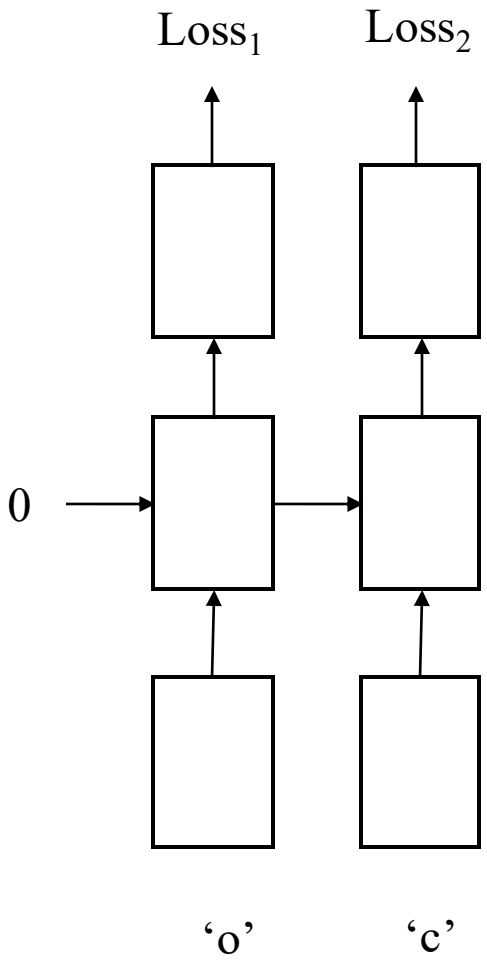
RNN and their computational graph

Loss = $Loss_1 + Loss_2$



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Embeddings = [-2, 5, 1, 9]

W_h= -5

Wx=1

Wy=-1

Elman RNN
Activation is f(x)=x
No bias

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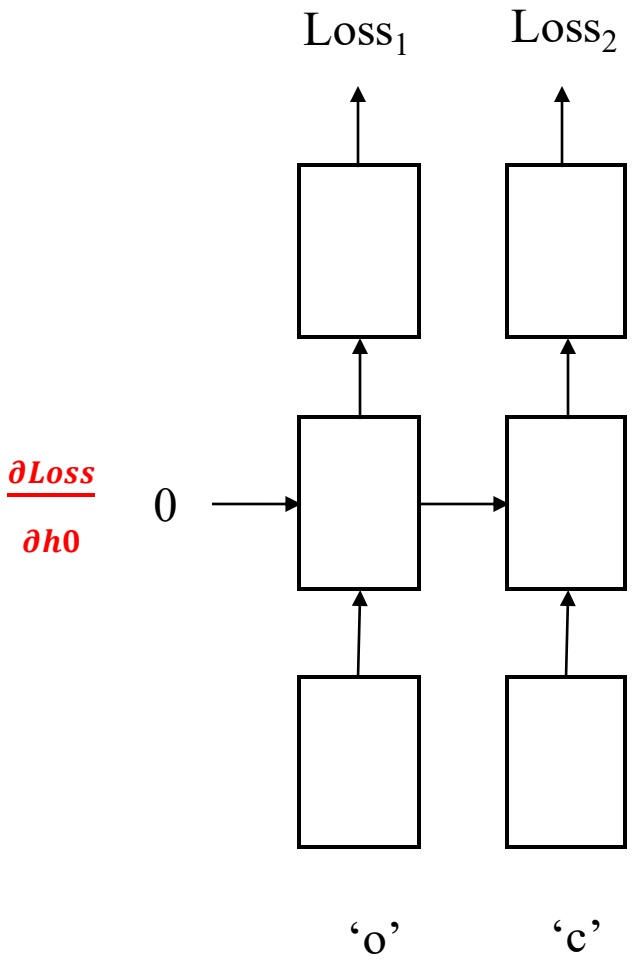

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What is the gradient of the loss on h_0?

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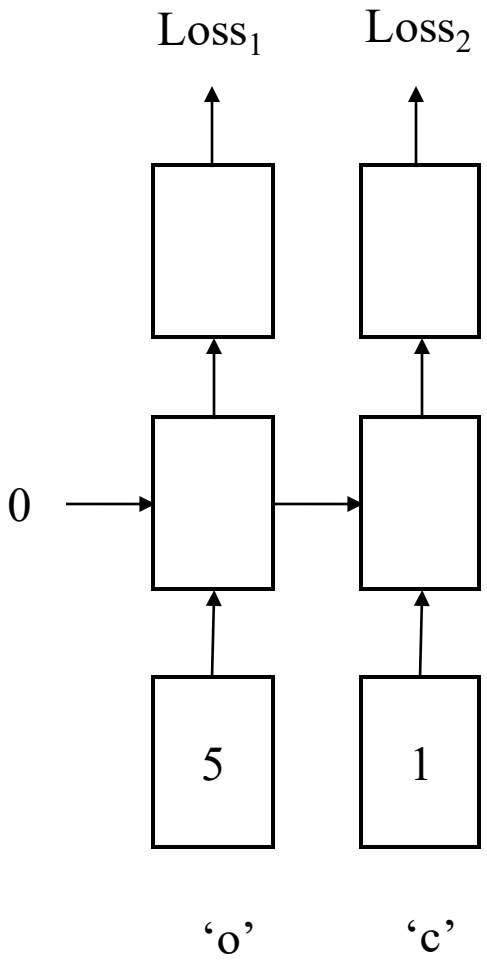

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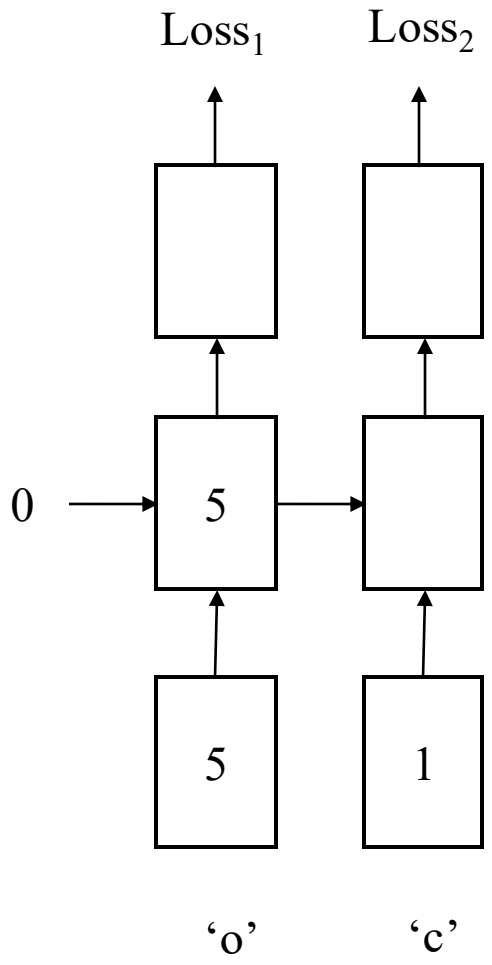

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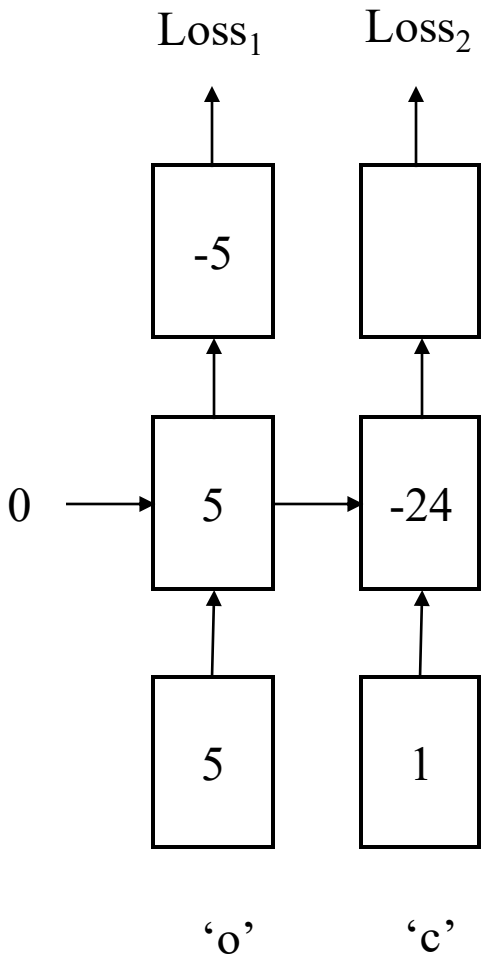

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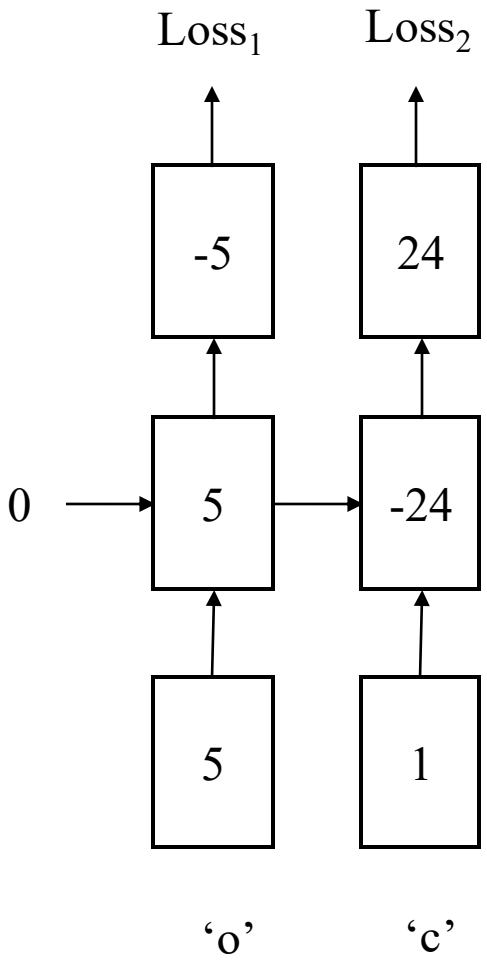

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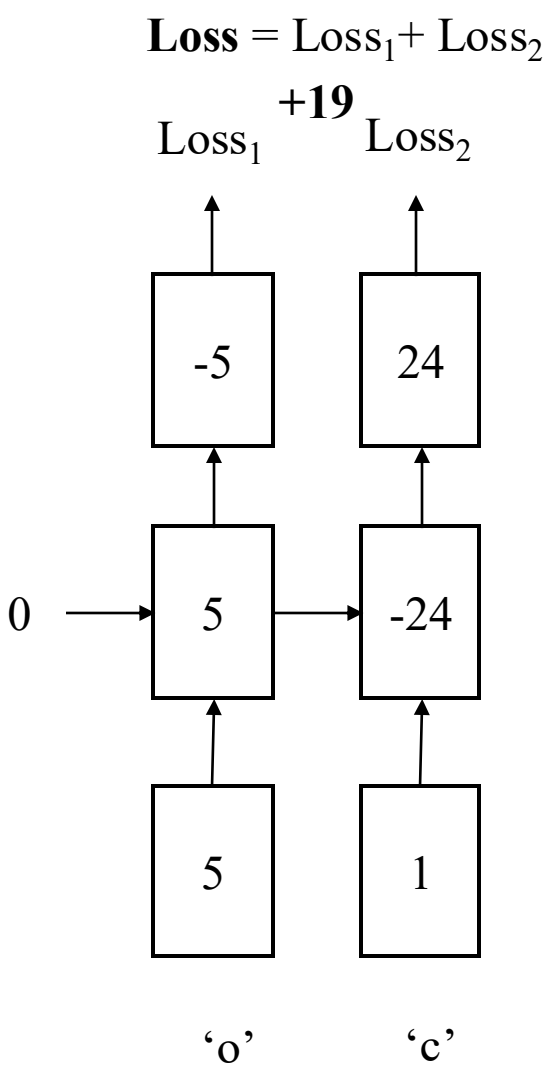

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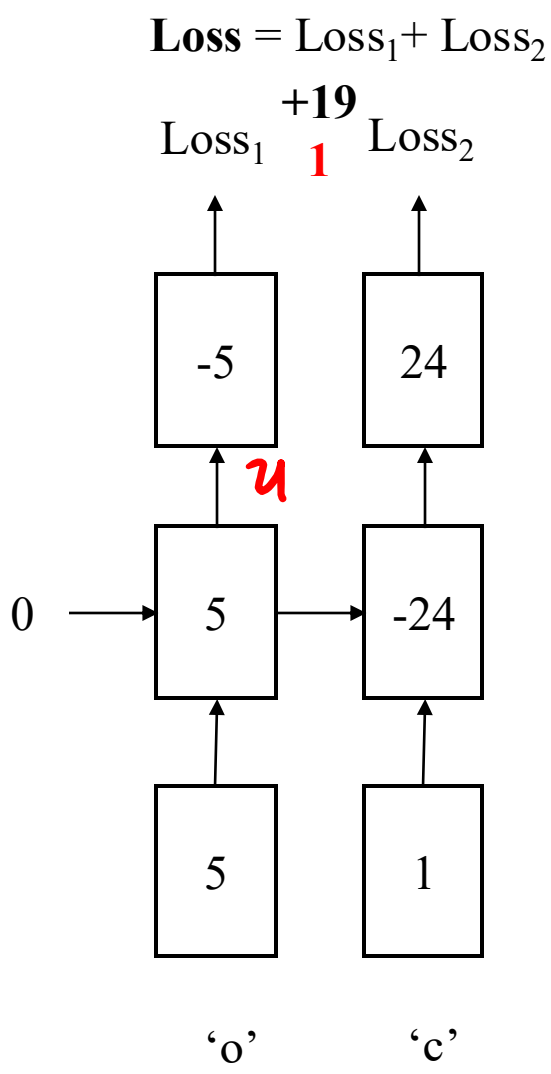

$y = W_y \cdot u$

$-1 \cdot 5$

$\frac{2y}{2y} = -1$

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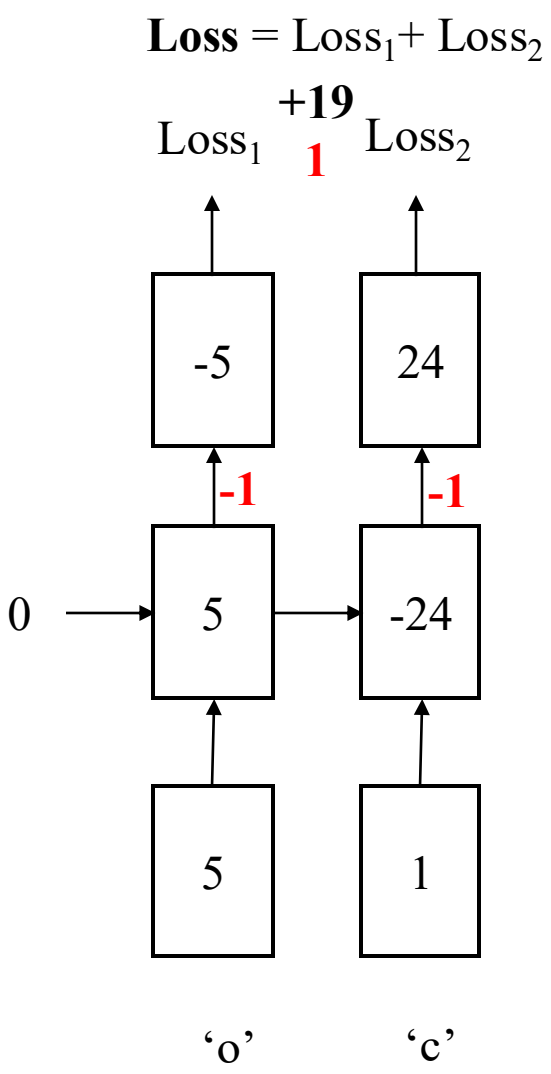

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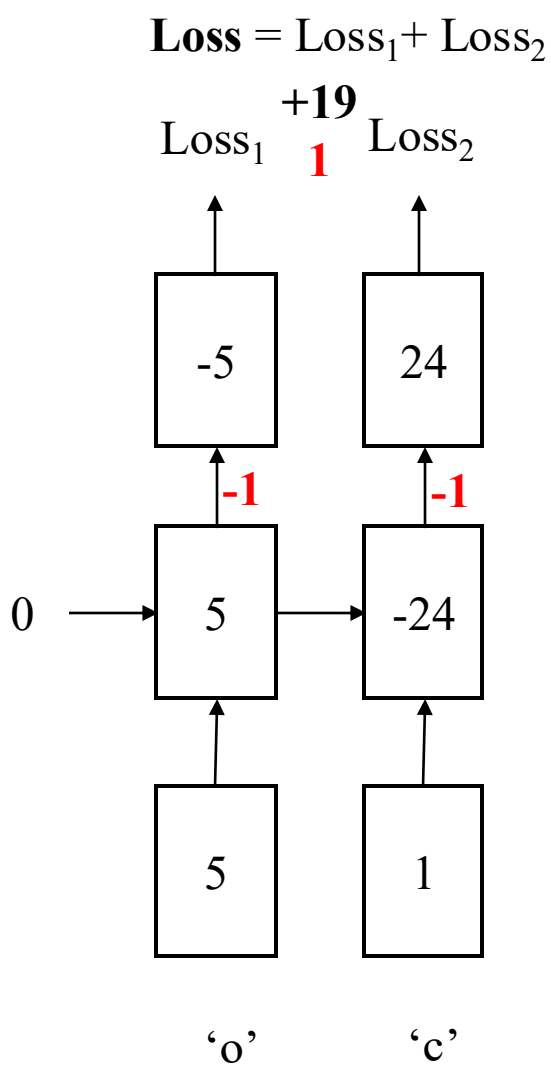

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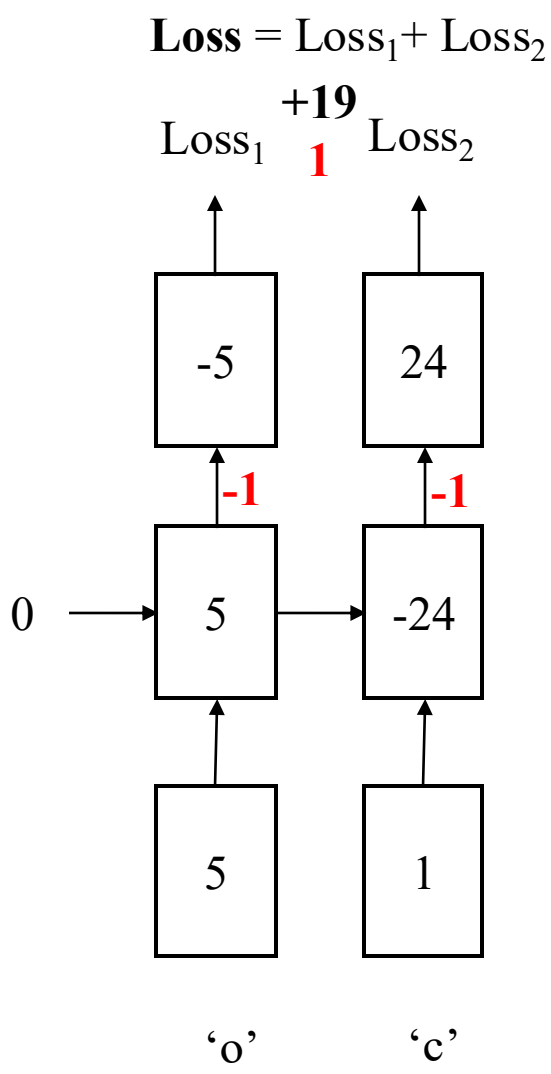
$$\frac{\partial f(h_{t-1})}{\partial h_{t-1}} = W_h$$



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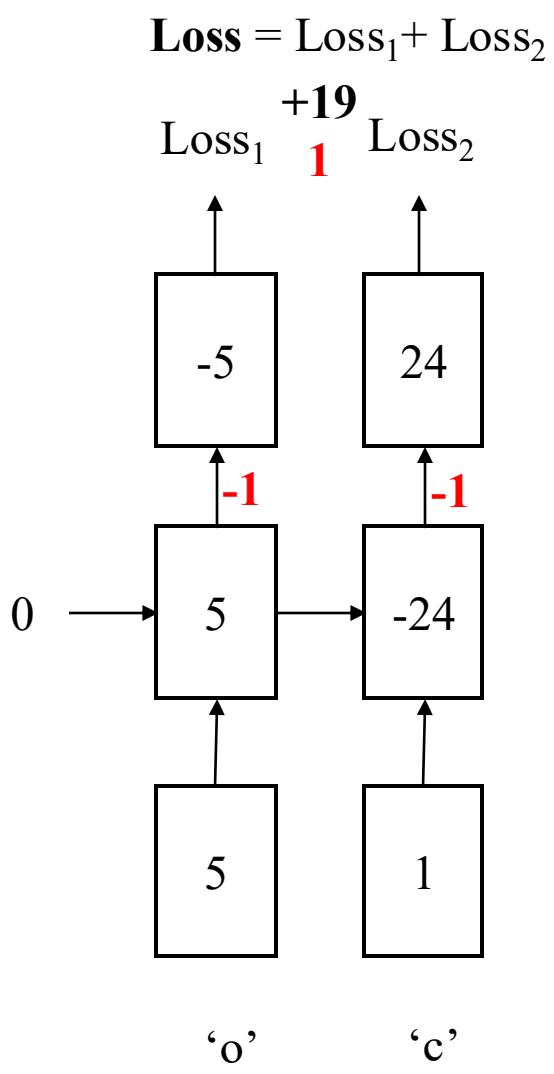

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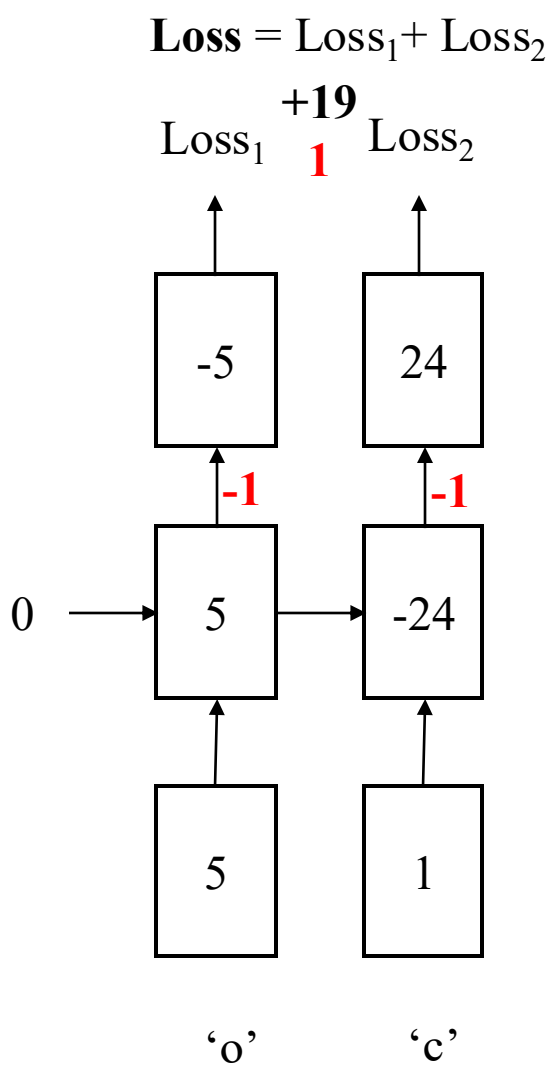

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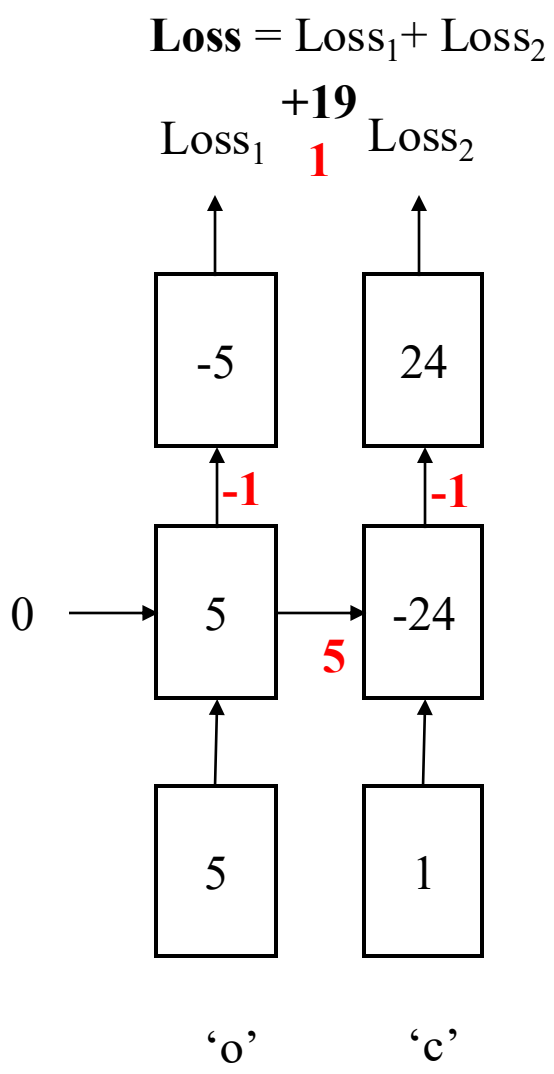

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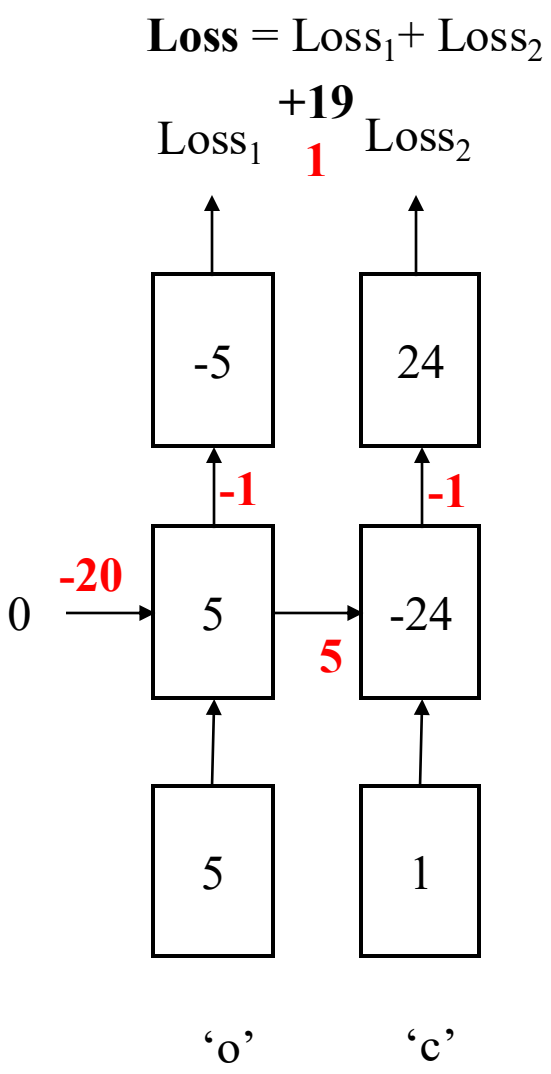

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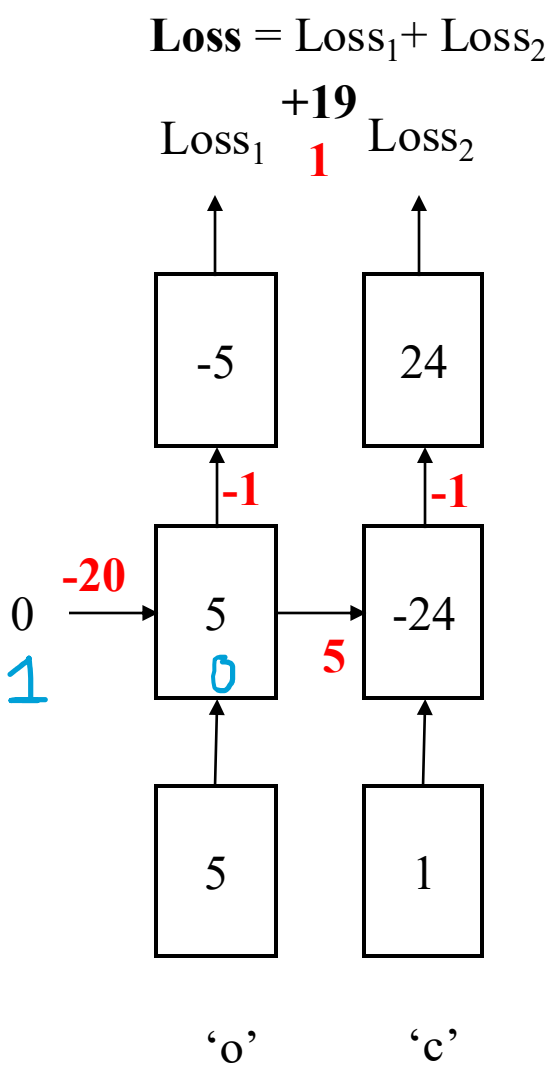

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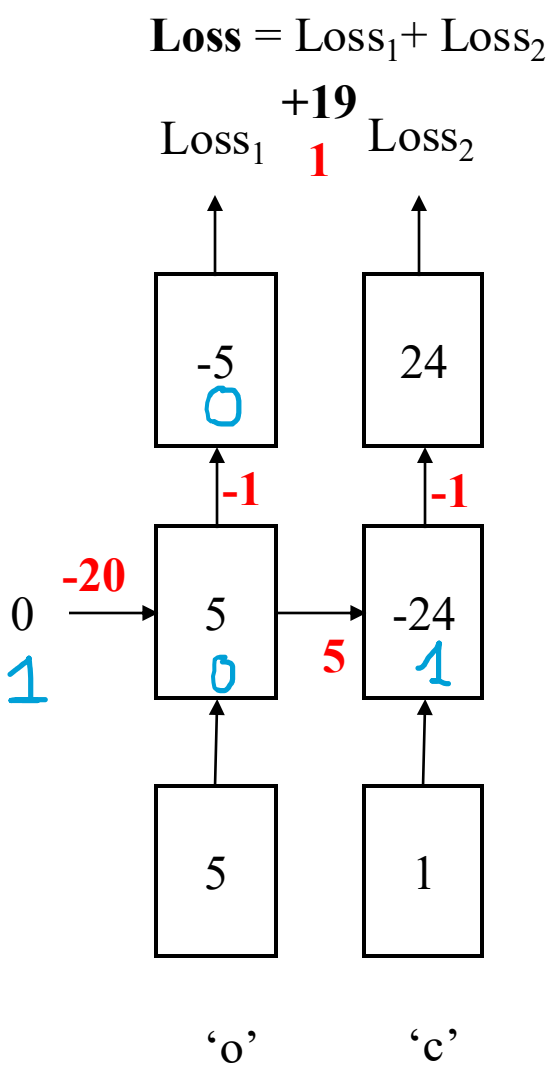

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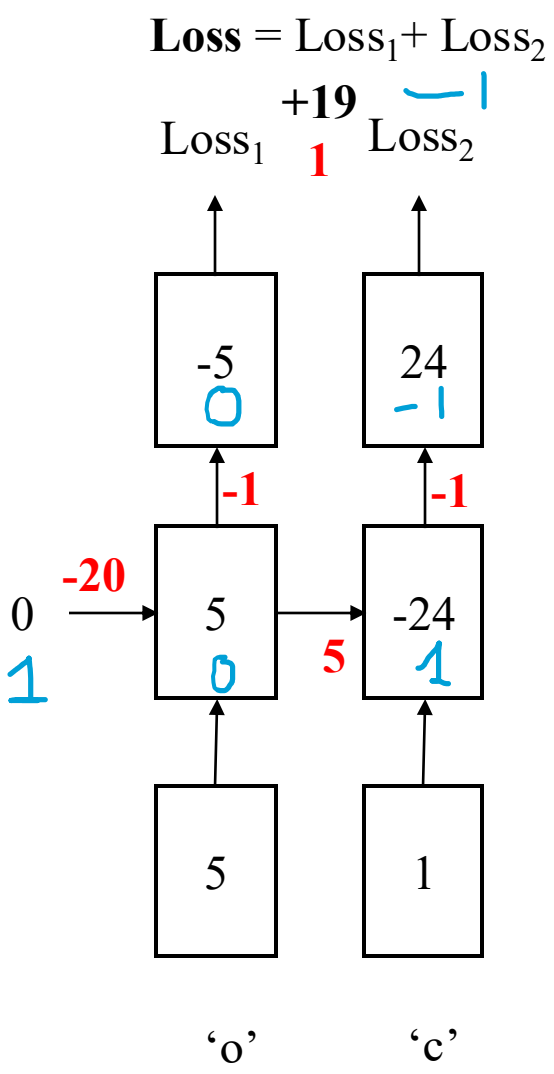

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