Introduction to Deep Learning (CS474)

Lecture 23

Rupam

Outline

- **Module 3**
  - **Backpropagation through time**
  - **Example (RNN using PyTorch)**

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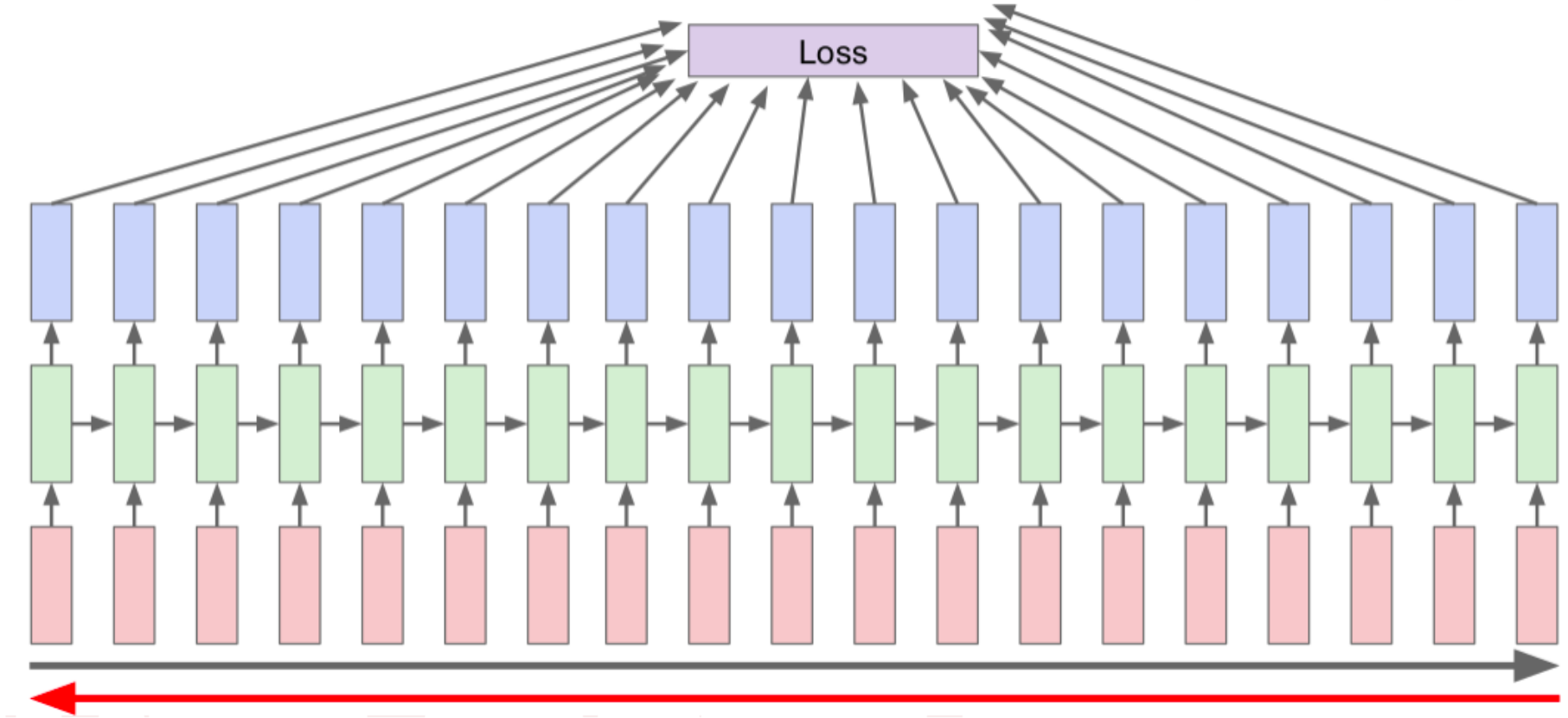
Backpropagation through time



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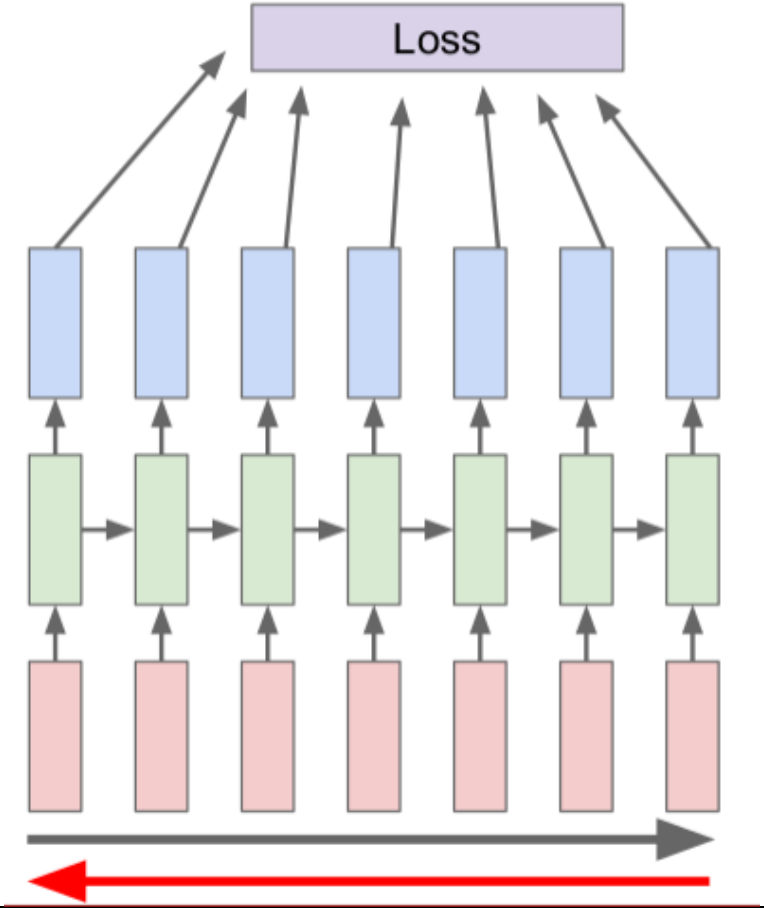
Backpropagation through time



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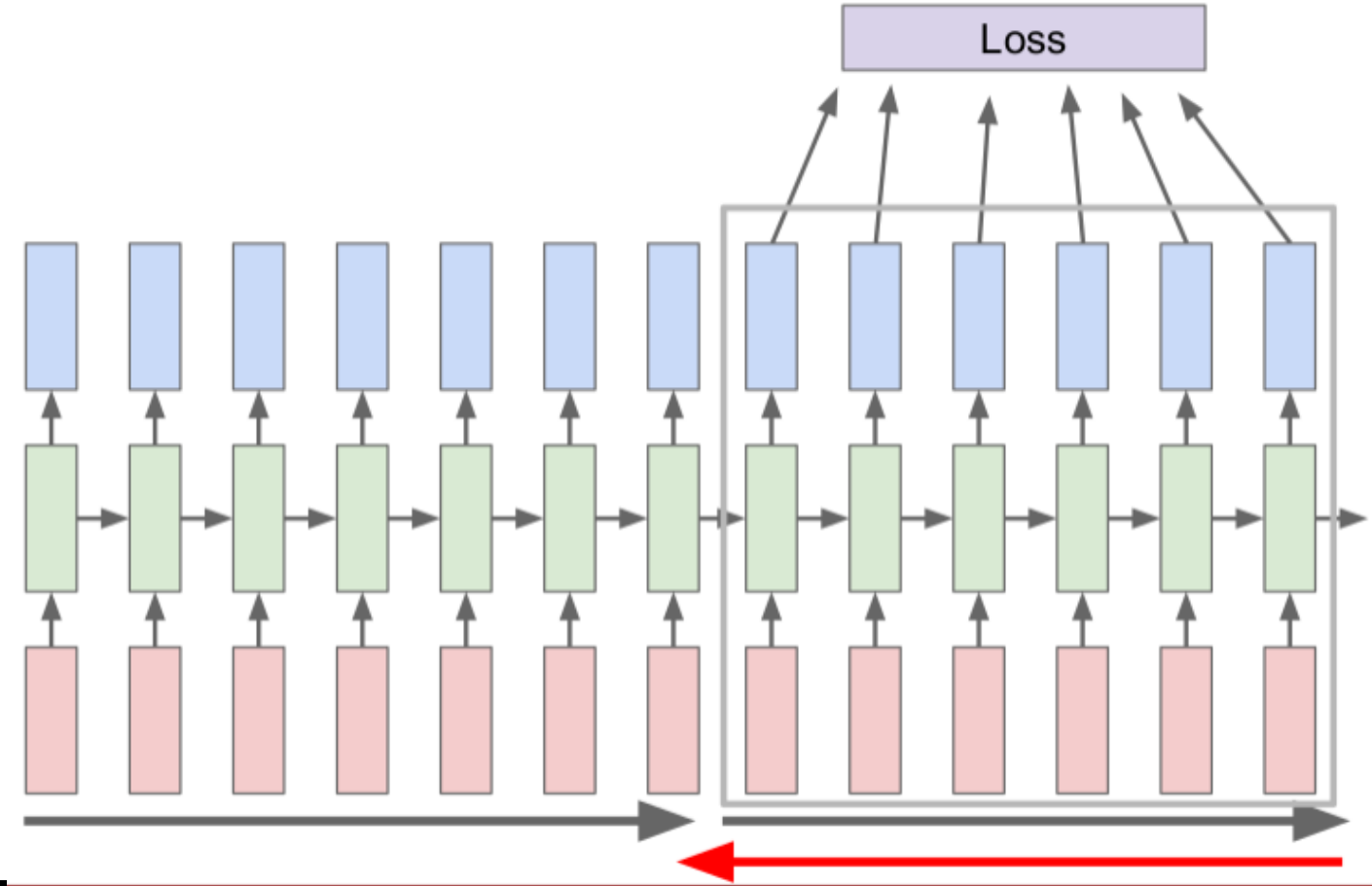
Backpropagation through time



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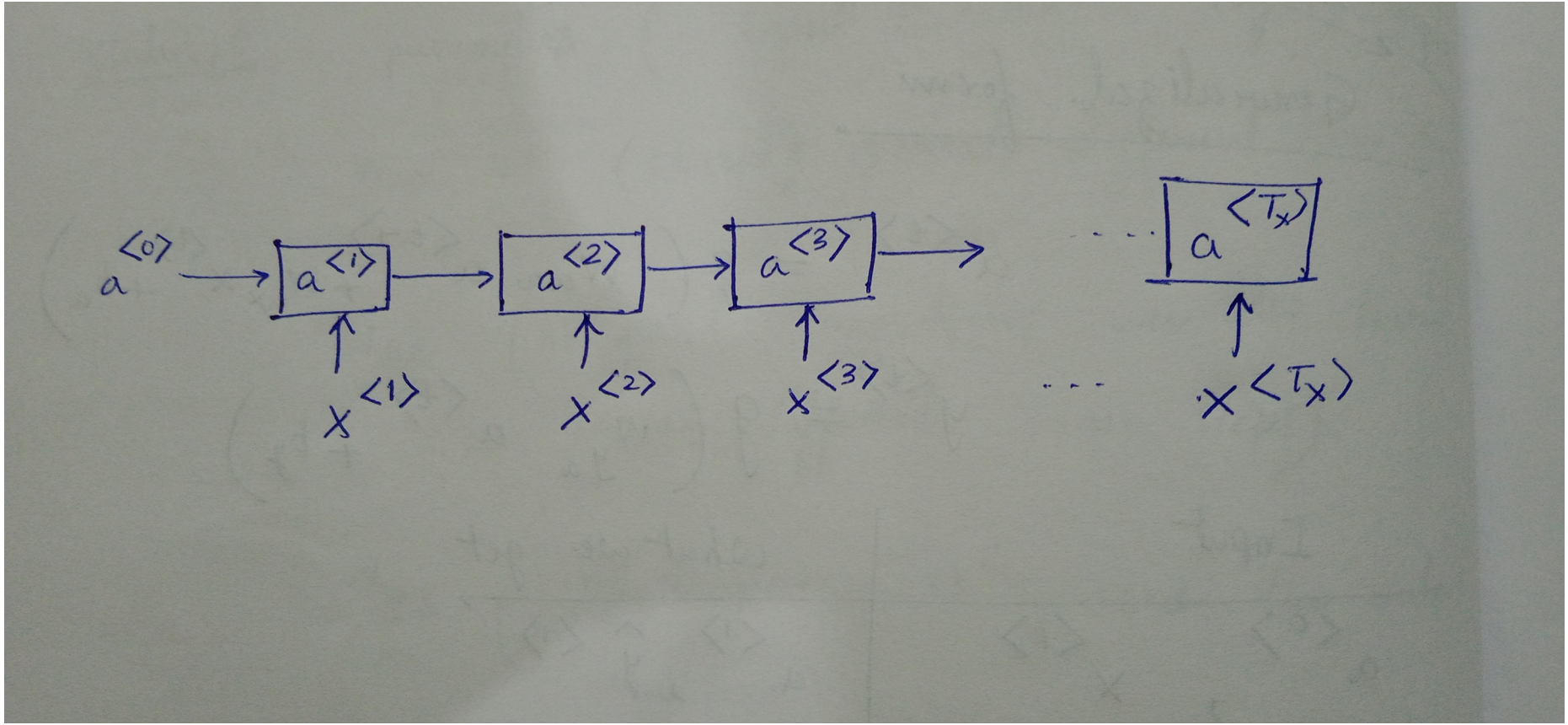
Backpropagation through time



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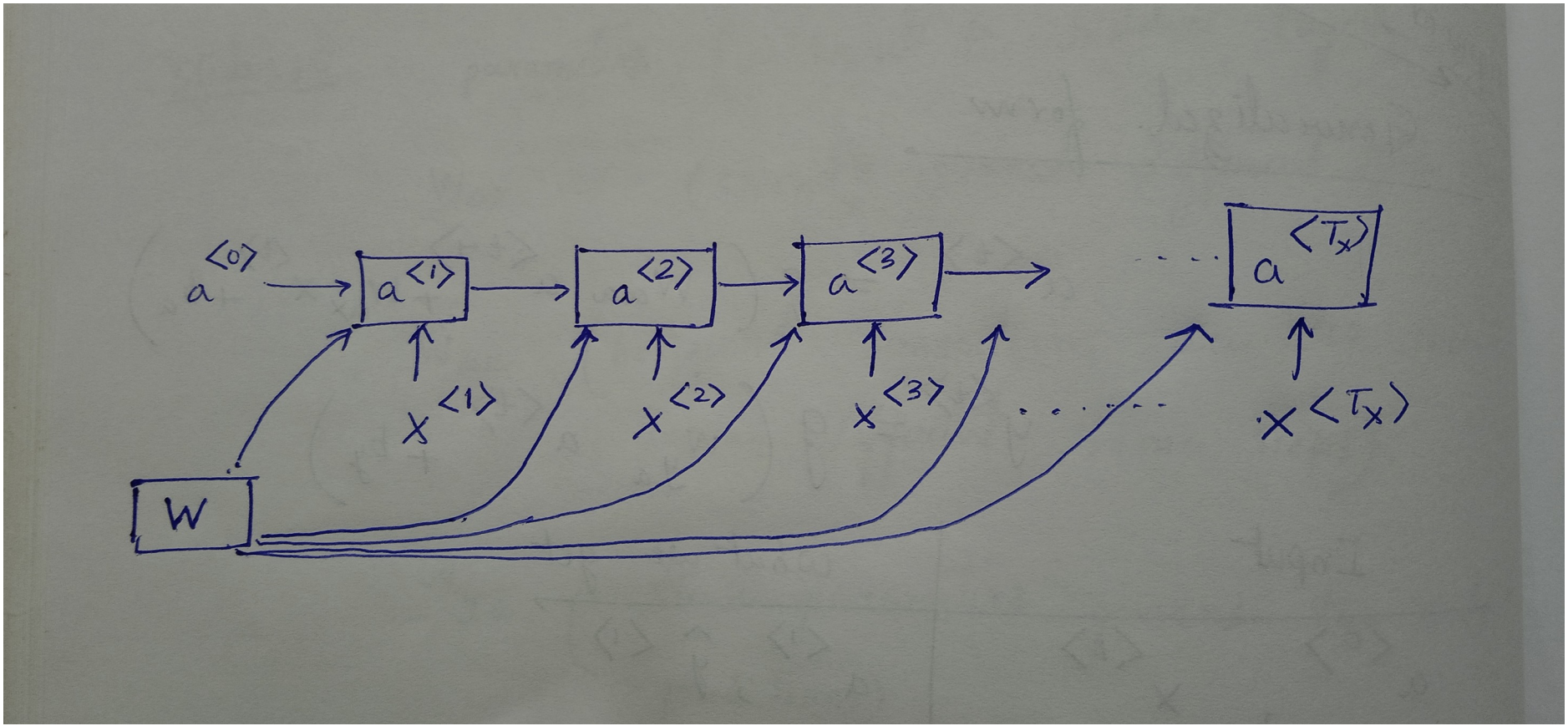
Backpropagation through time



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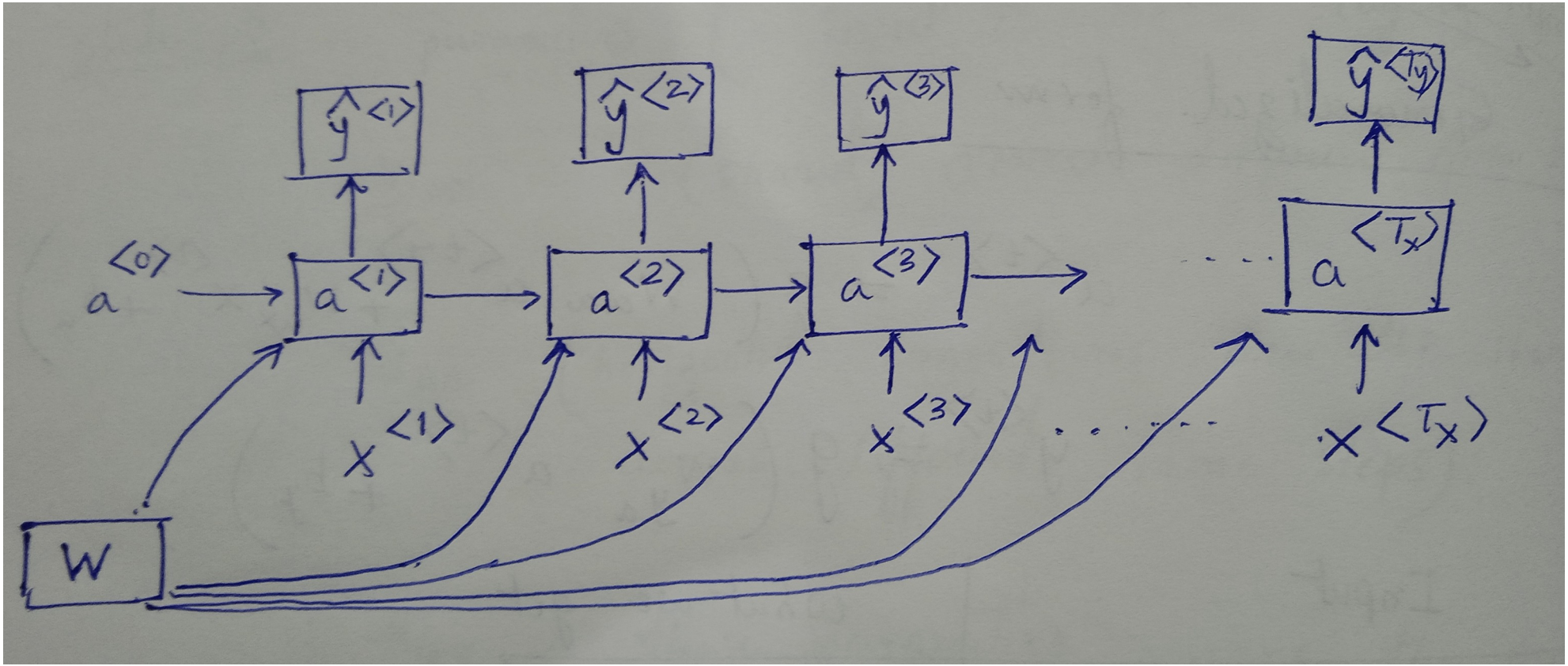
Backpropagation through time



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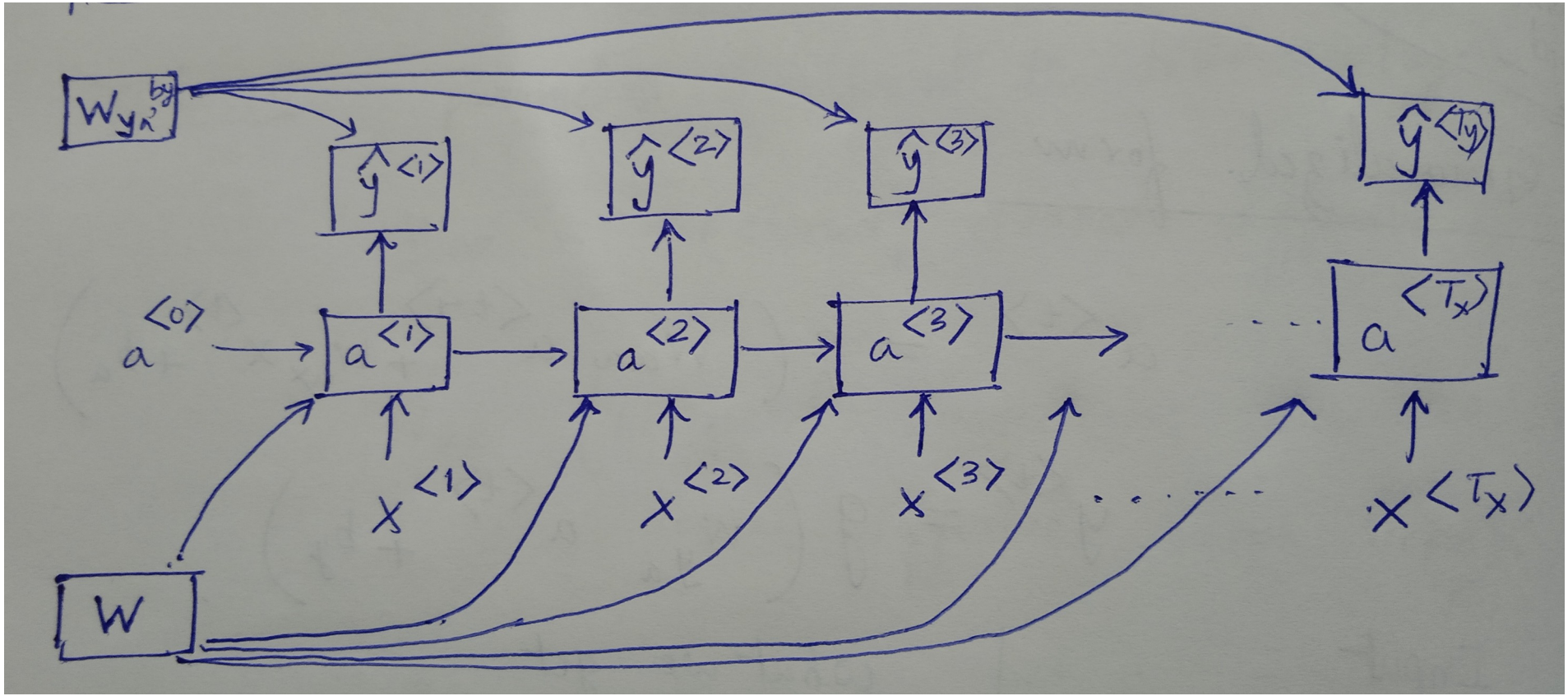
Backpropagation through time



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Backpropagation through time

$$\mathcal{L}^{<t>}(\hat{y}^{<t>}, y^{<t>}) = -y^{(t)} \log \hat{y}^{(t)} - (1-y^{<t>}) \log (1-\hat{y}^{(t)})$$

$$\mathcal{L}(\hat{y}, y) = \sum_{t=1}^{T_y} \mathcal{L}^{<t>}(\hat{y}^{<t>}, y^{<t>})$$

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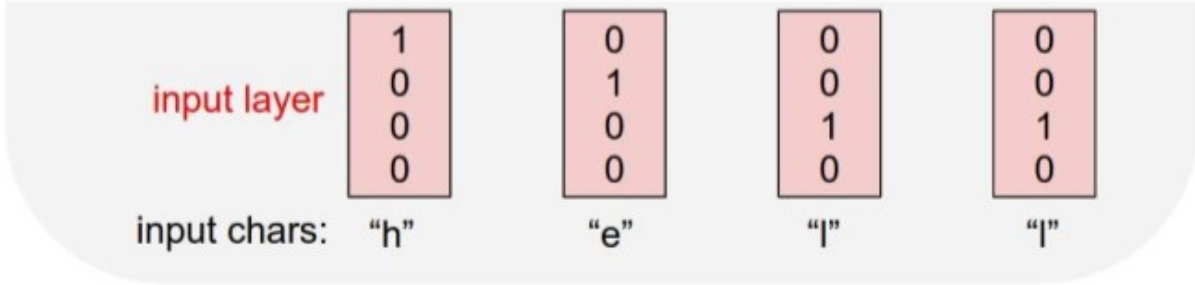
Example

Vocabulary:
[h,e,l,o]

Example training sequence:
“hello”



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References

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