



deeplearning.ai

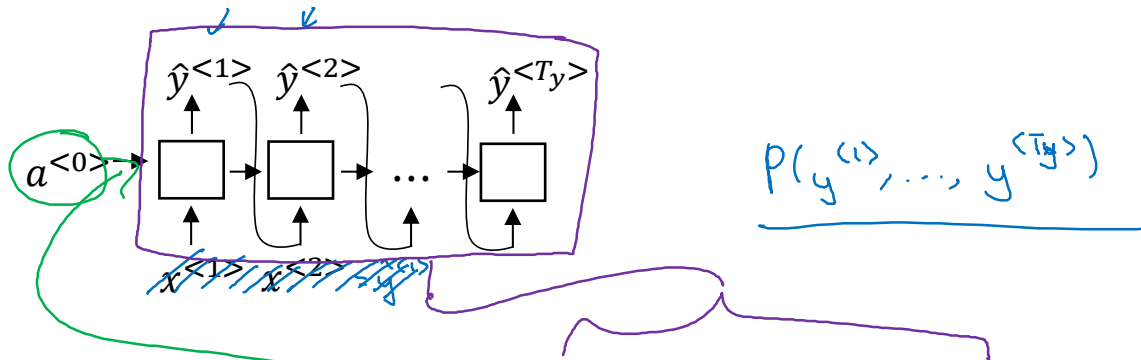
# Sequence to sequence models

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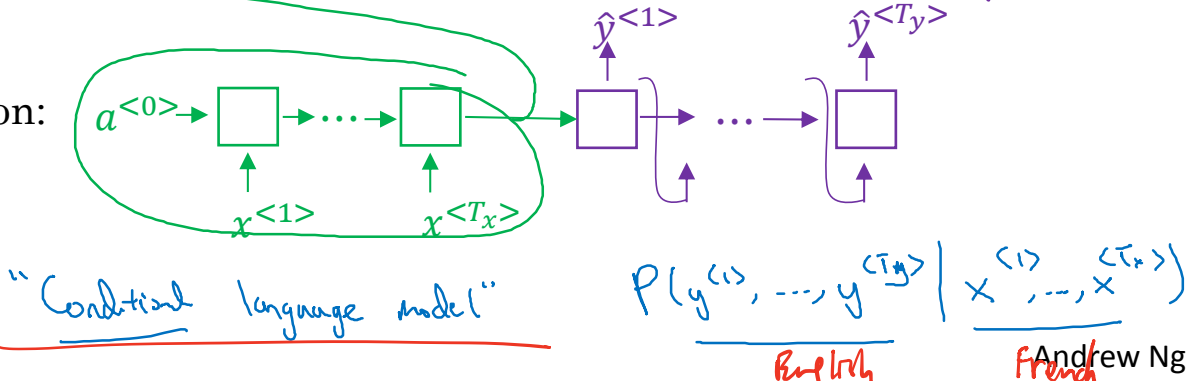
## Picking the most likely sentence

# Machine translation as building a conditional language model

Language model:



Machine translation:



# Finding the most likely translation

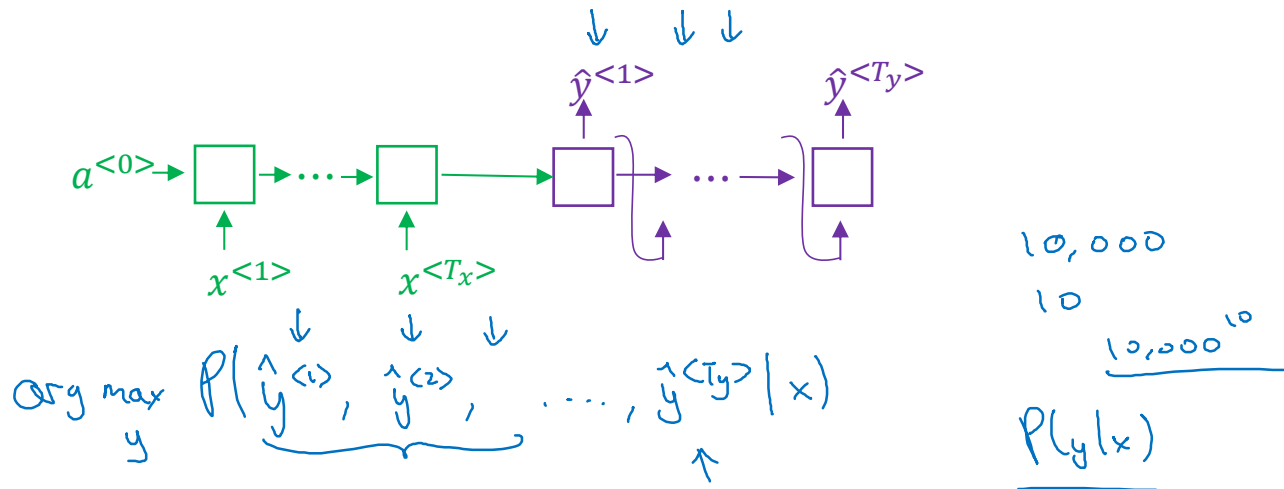
Jane visite l'Afrique en septembre.

$$\underbrace{P(y^{<1>}, \dots, y^{<T_y>} | x)}_{\text{English}} \quad \text{French} \downarrow$$

- Jane is visiting Africa in September.
- Jane is going to be visiting Africa in September.
- In September, Jane will visit Africa.
- Her African friend welcomed Jane in September.

$$\arg \max_{y^{<1>}, \dots, y^{<T_y>}} \underbrace{P(y^{<1>}, \dots, y^{<T_y>} | x)}$$

# Why not a greedy search?



→ Jane is visiting Africa in September.

→ Jane is going to be visiting Africa in September.

$$P(\text{Jane is going} | x) > P(\text{Jane is visit} | x)$$