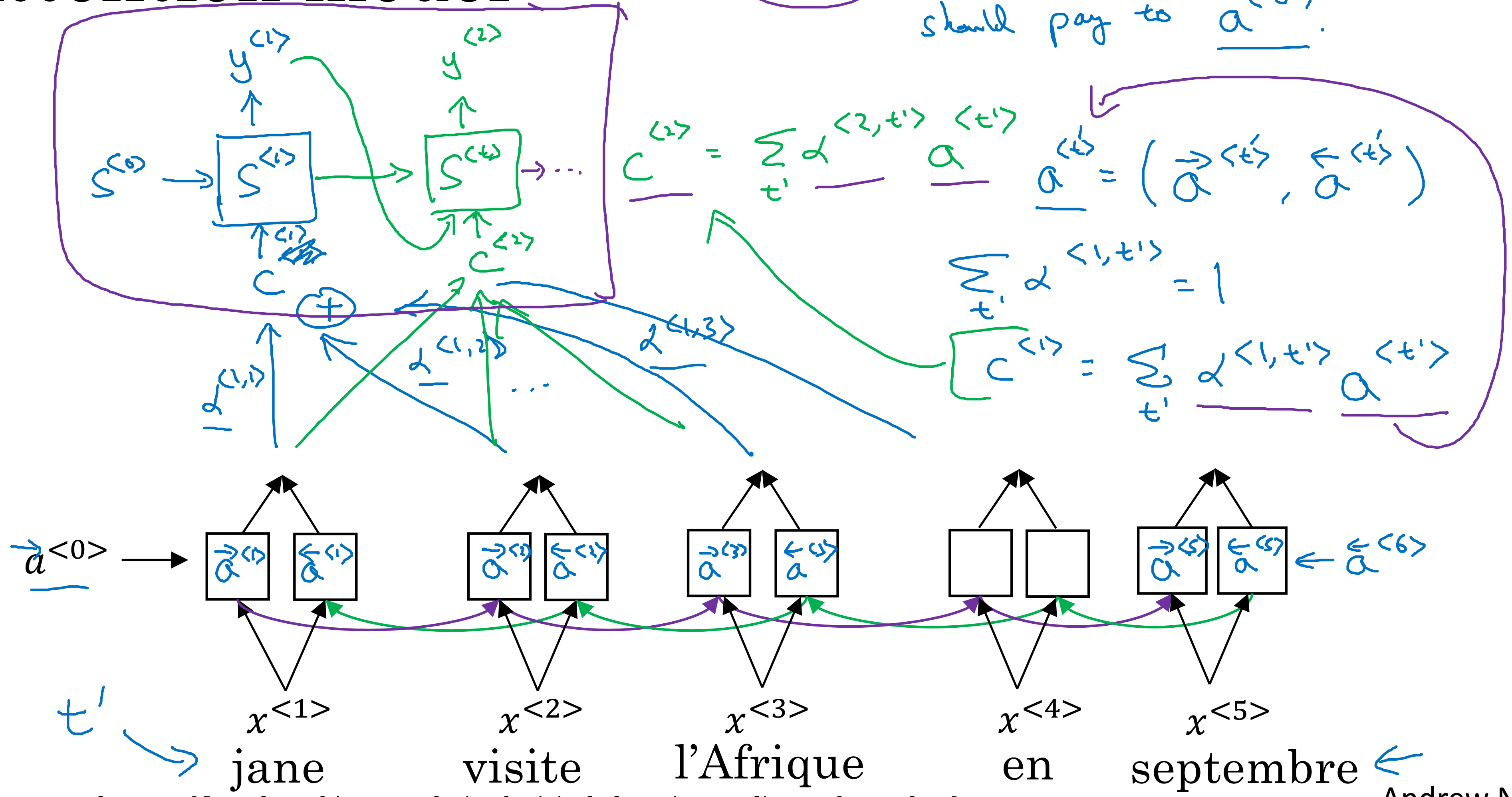
deeplearning.ai

Sequence to sequence models

Attention model

Attention model

$\alpha^{<t,t'>}$ = amount of "attention" $y^{<t>}$ should pay to $a^{<t'>}$.



$$c^{<2>} = \sum_{t'} \alpha^{<2,t'>} a^{<t'>}$$

$$a^{<t'>} = (\vec{a}^{<t'>}, \overleftarrow{a}^{<t'>})$$

$$\sum_{t'} \alpha^{<1,t'>} = 1$$

$$\boxed{c^{<1>}} = \sum_{t'} \alpha^{<1,t'>} a^{<t'>}$$

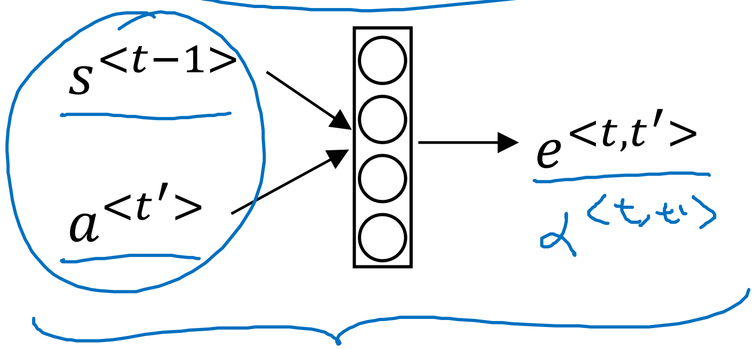
[Bahdanau et. al., 2014. Neural machine translation by jointly learning to align and translate]

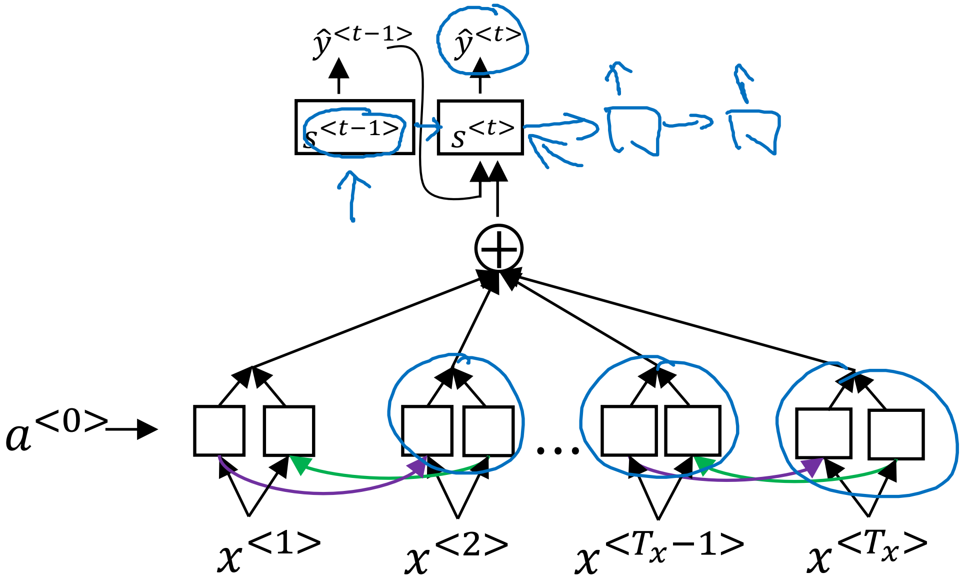
Computing attention $\alpha^{<t,t'>}$

T_x T_y

$\alpha^{<t,t'>}$ = amount of attention $y^{<t>}$ should pay to $a^{<t'>}$

$$\alpha^{<t,t'>} = \frac{\exp(e^{<t,t'>})}{\sum_{t'=1}^{T_x} \exp(e^{<t,t'>})}$$





[Bahdanau et. al., 2014. Neural machine translation by jointly learning to align and translate]

[Xu et. al., 2015. Show, attend and tell: Neural image caption generation with visual attention]

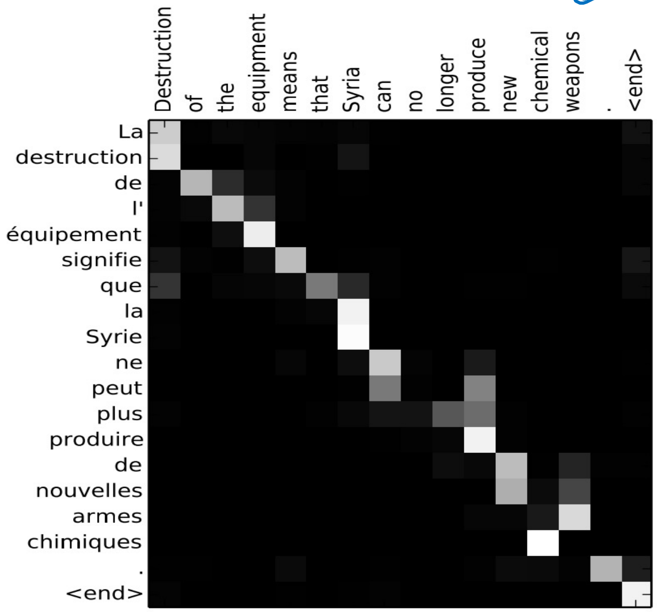
Andrew Ng

Attention examples

July 20th 1969 ⟶ 1969 – 07 – 20

23 April, 1564 ⟶ 1564 – 04 – 23

Visualization of $\alpha^{<t,t'>}$:


Destruction
of
the
equipment
means
that
Syria
can
no
longer
produce
new
chemical
weapons
<end>
La
destruction
de
l'
équipement
signifie
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