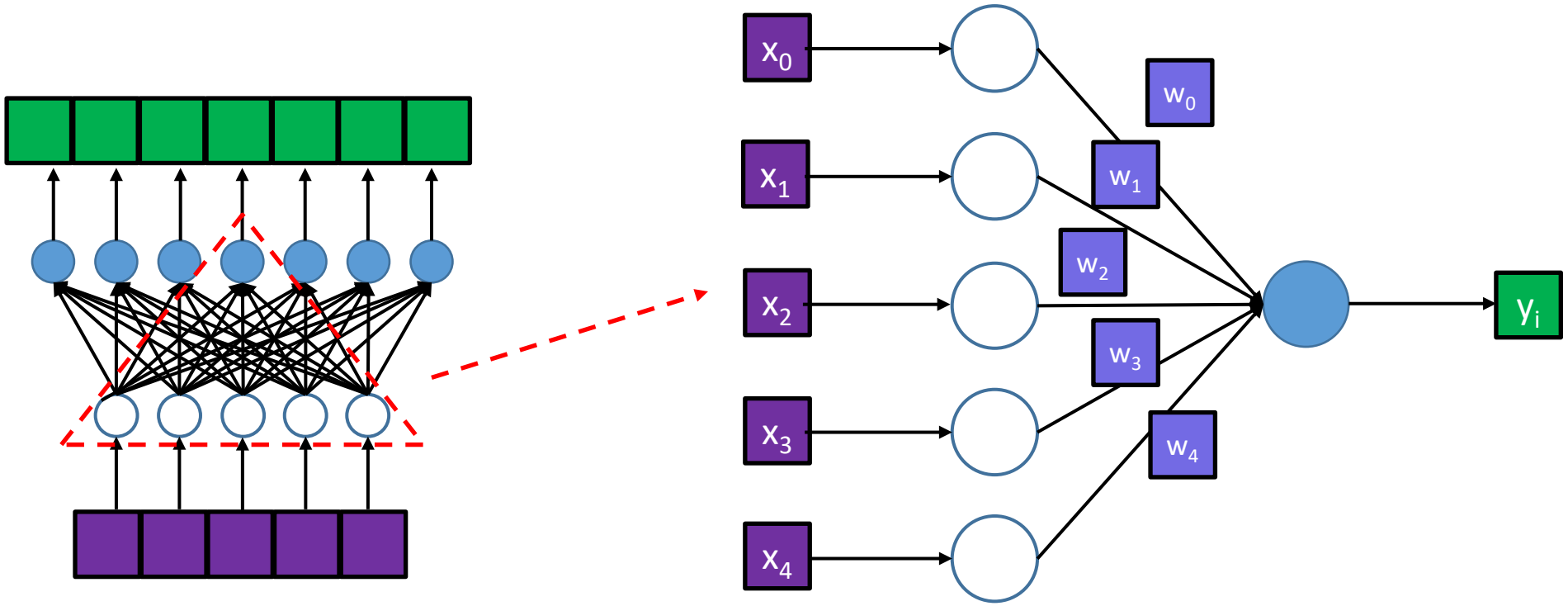
AttentionとSelf-Attentionの仕組み

徐　宏坤

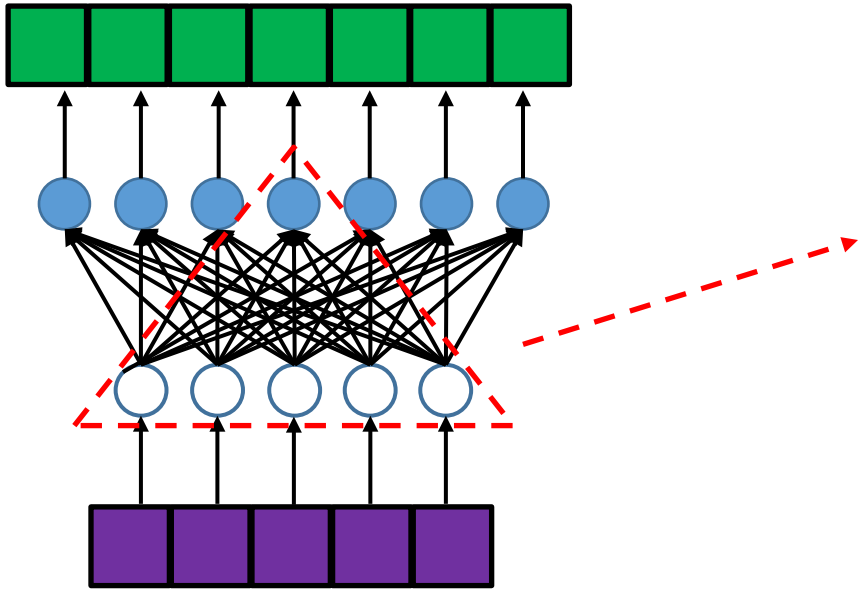
2021.04.23

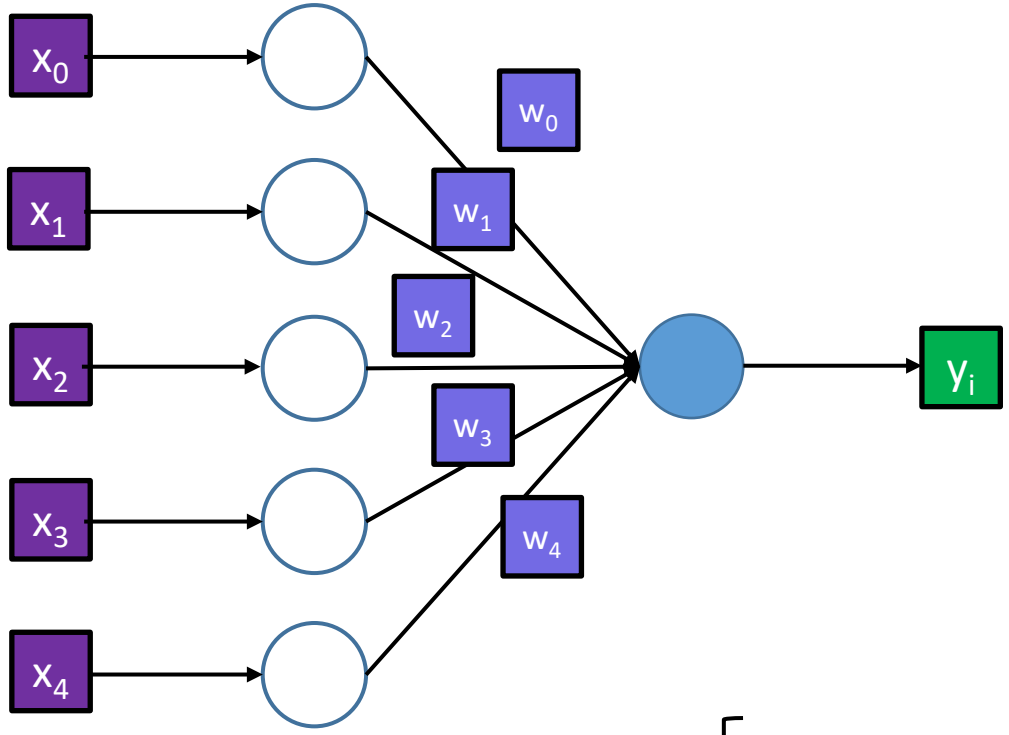
ニューラルネットワーク（DNN）

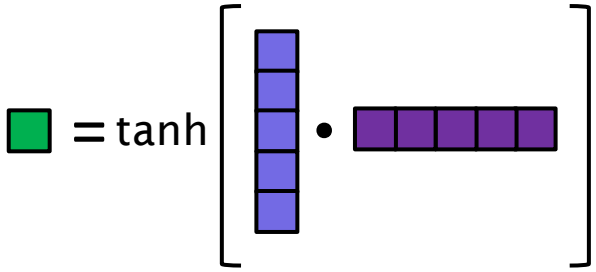


$$y_i = tanh(x_0 w_0 + x_1 w_1 + x_2 w_2 + x_3 w_3 + x_4 w_4)$$

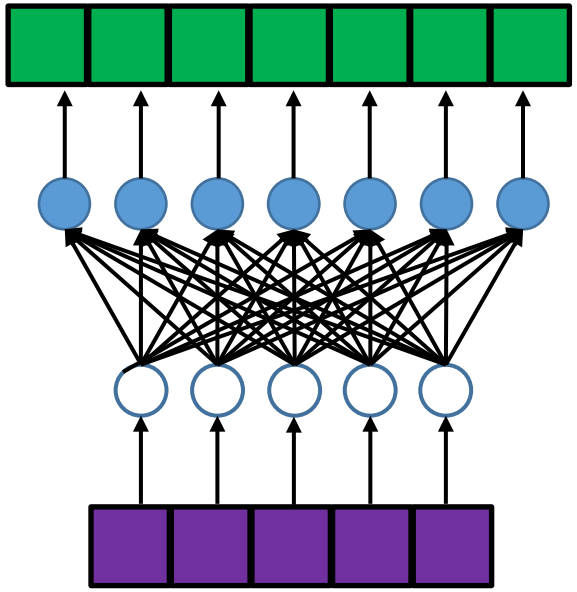
ニューラルネットワーク（DNN）

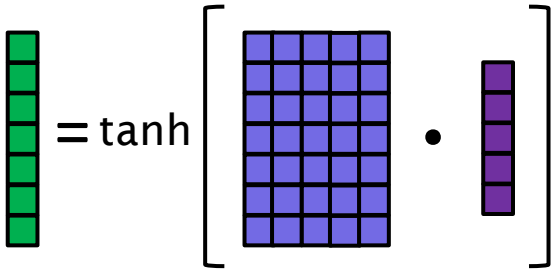




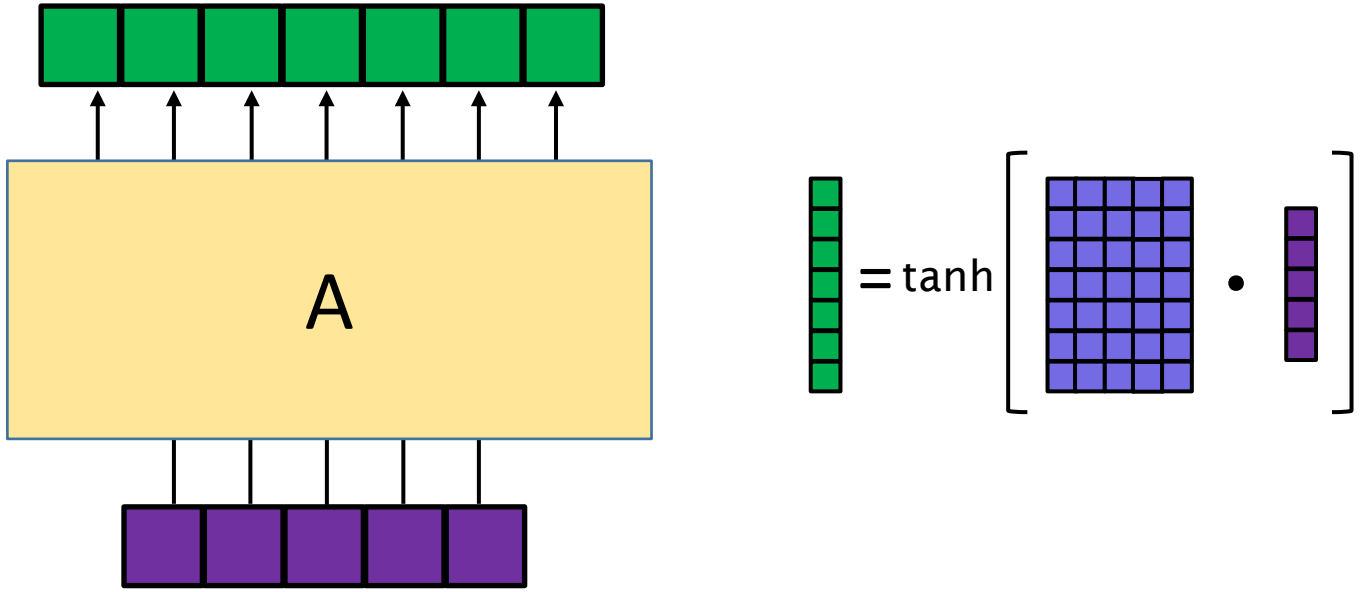


ニューラルネットワーク（DNN）

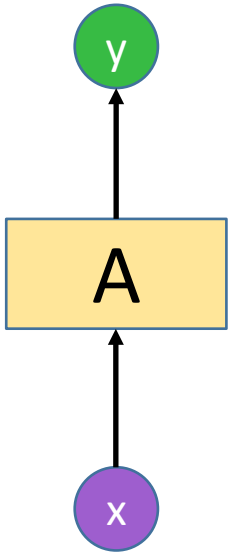


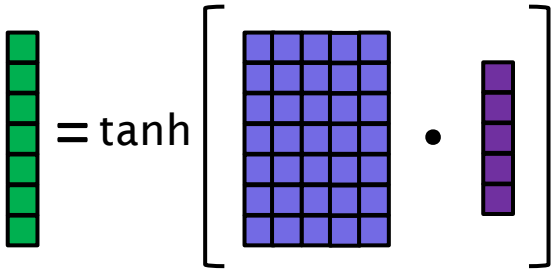


ニューラルネットワーク（DNN）

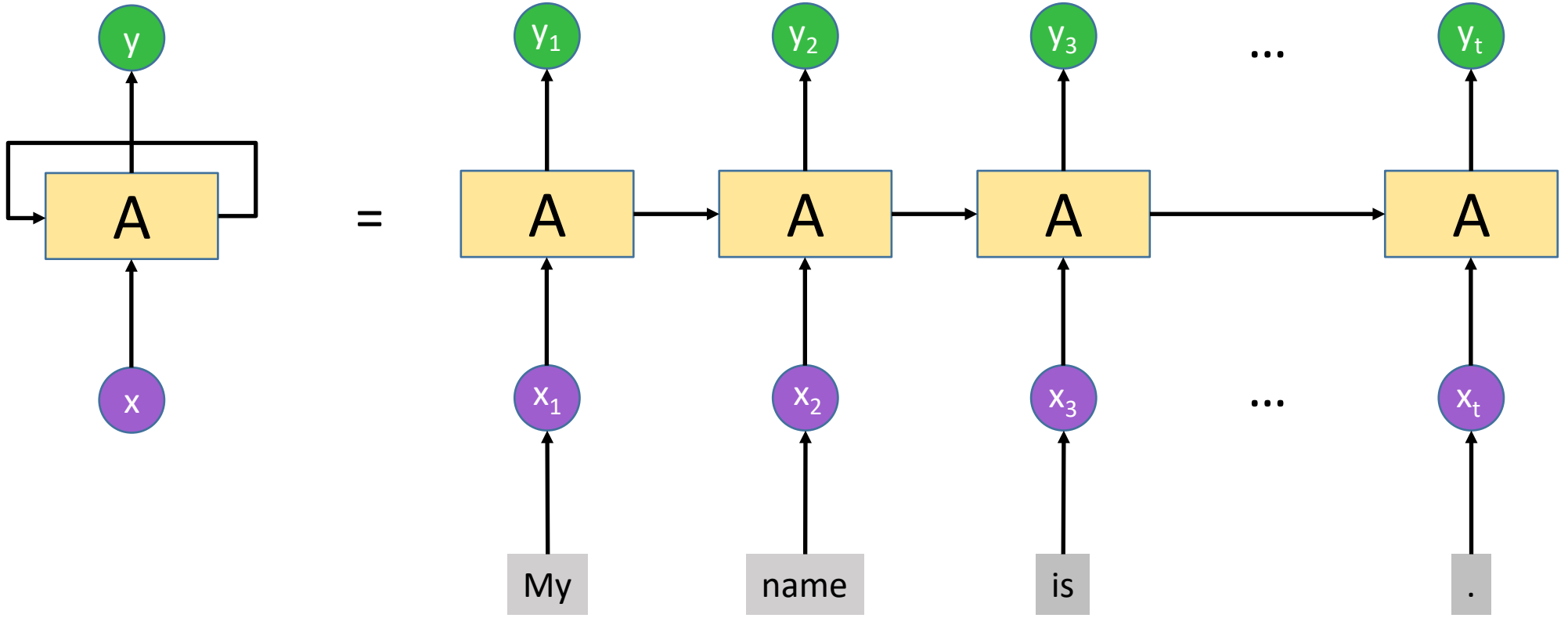


ニューラルネットワーク（DNN）

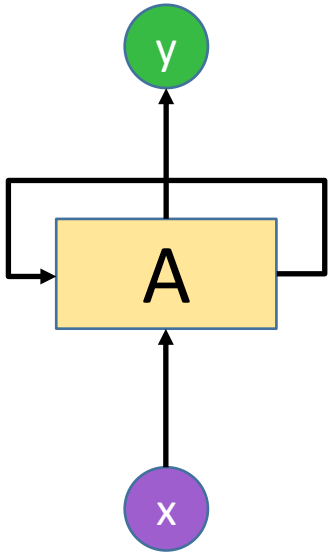


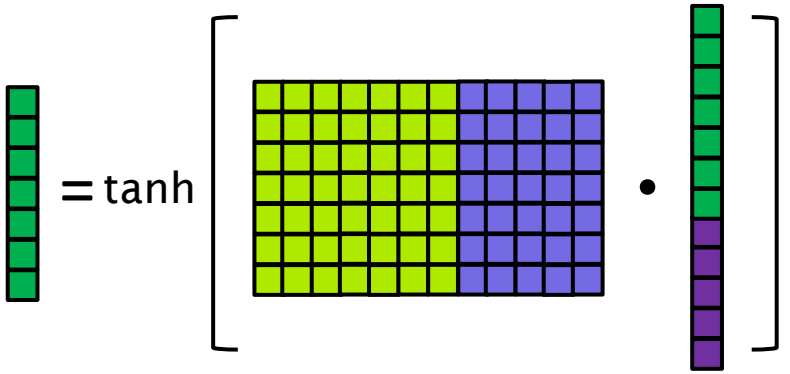


再帰型ニューラルネットワーク（RNN）

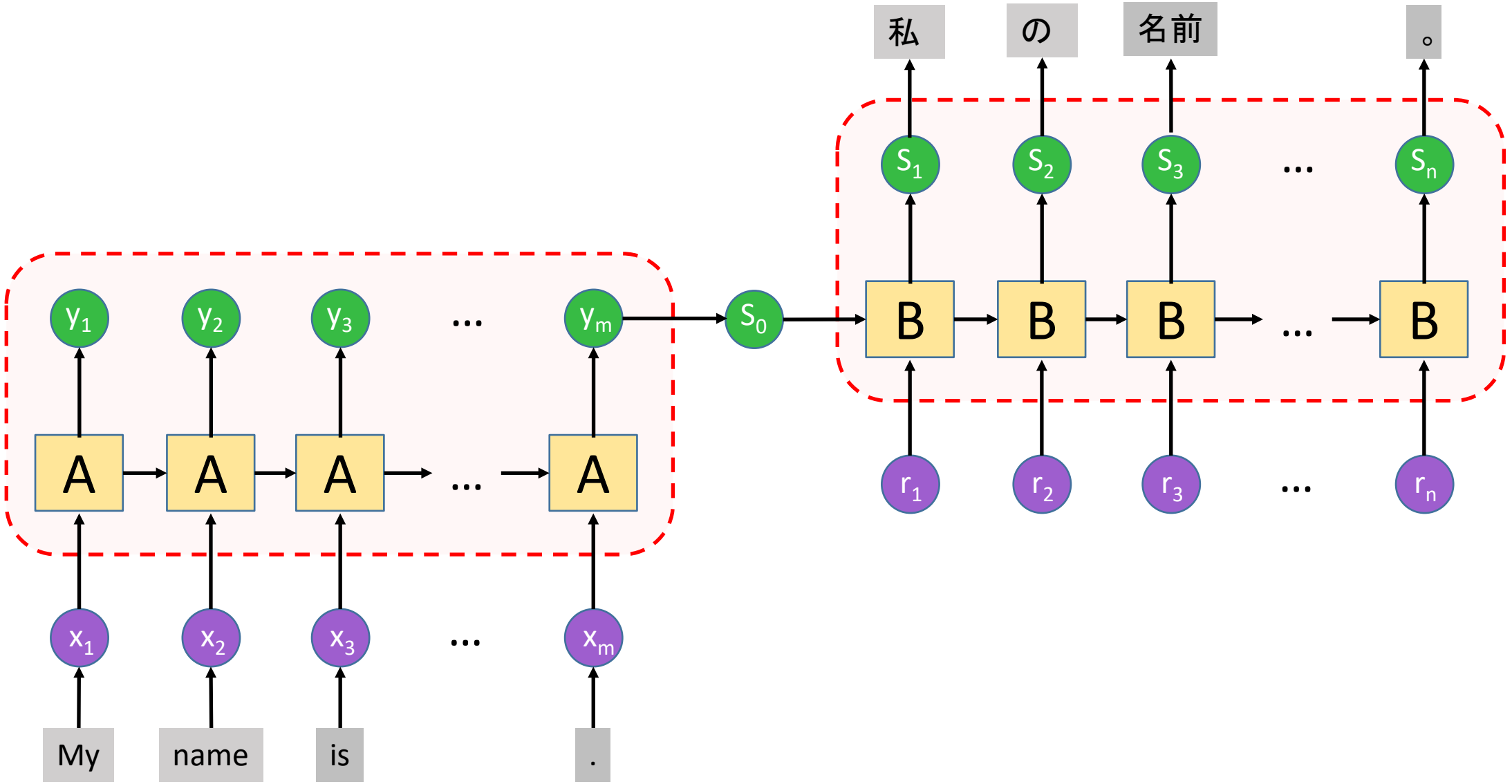


再帰型ニューラルネットワーク（RNN）



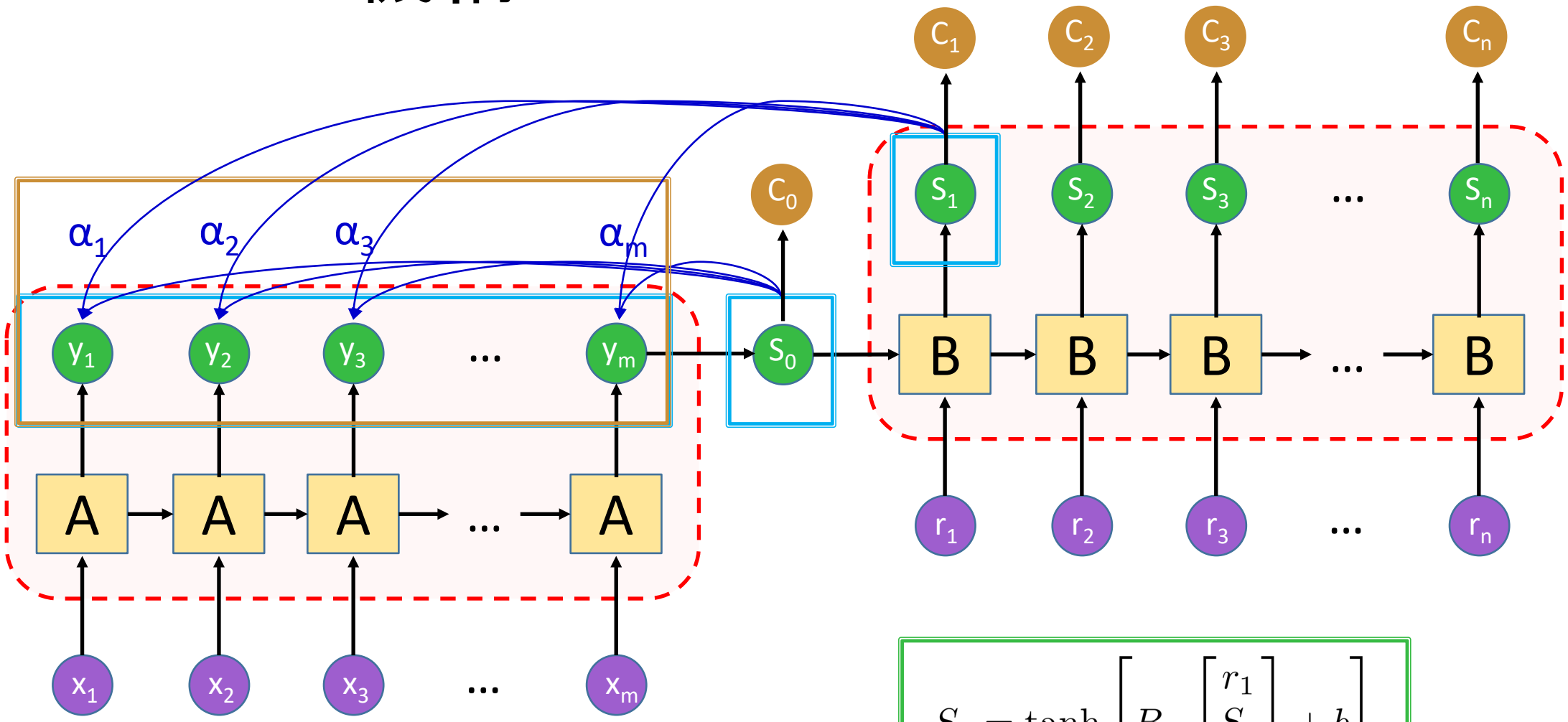


Seq2Seqモデル（機械翻訳用）



Attention機構

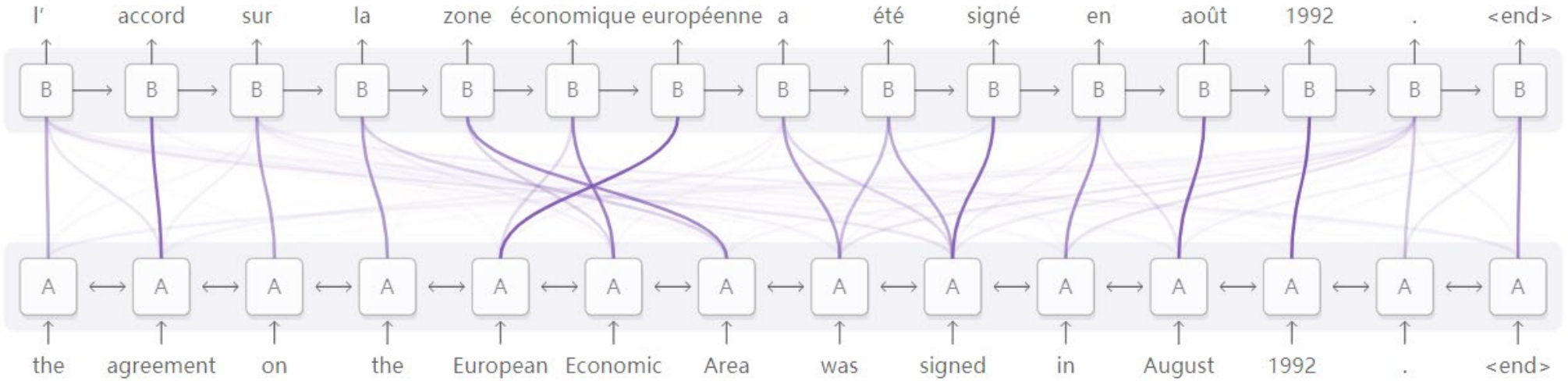
$$C_0 = \alpha_1 y_1 + \alpha_2 y_2 + \alpha_3 y_3 + \ldots + \alpha_m y_m$$



$$S_1 = \tanh\left[B \cdot \begin{bmatrix} r_1 \\ S_0 \\ C_0 \end{bmatrix} + b\right]$$

Attention機構

フランス語



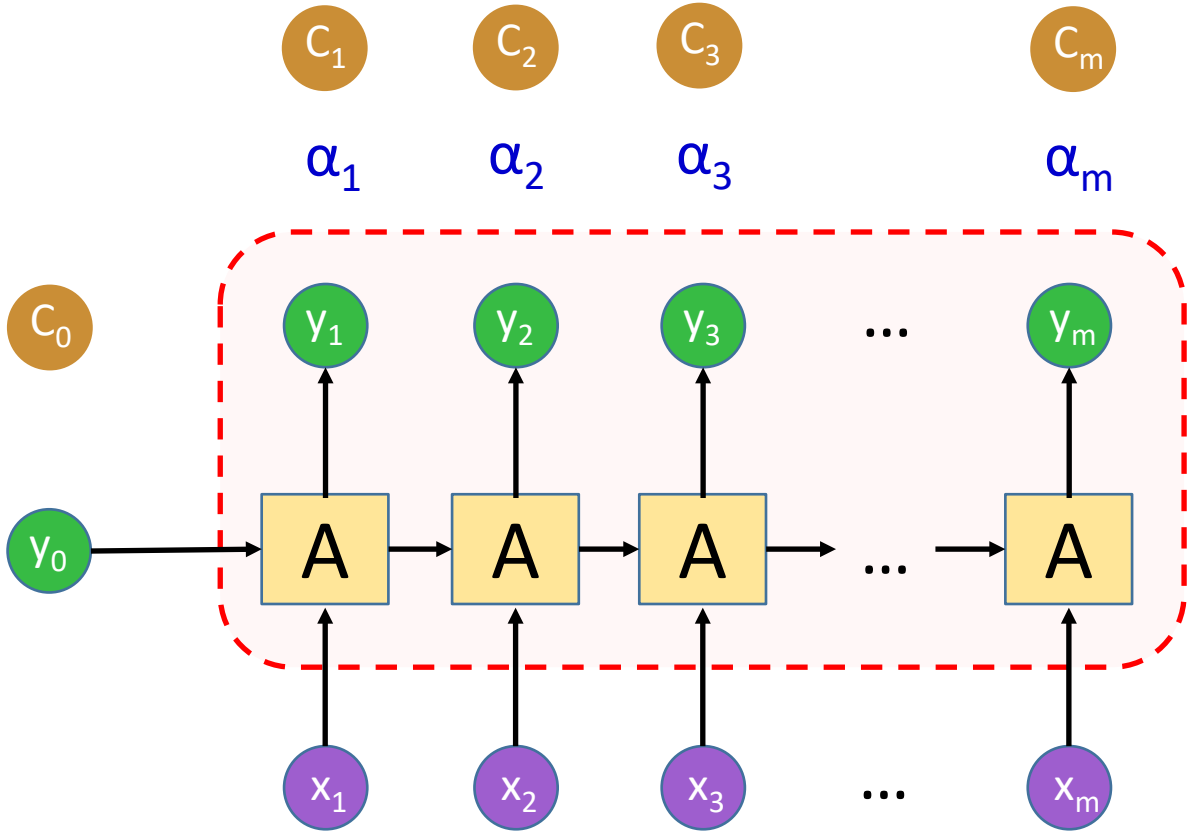
英語

https://distill.pub/2016/augmented-rnns/

Self-Attention機構

$$y_1 = \tanh\left[B \cdot \begin{bmatrix} x_1 \\ y_0 \\ C_0 \end{bmatrix} + b\right]$$

$$C_1 = y_1 \quad C_2 = \alpha_1 y_1 + \alpha_2 y_2$$



ご清聴ありがとうございました