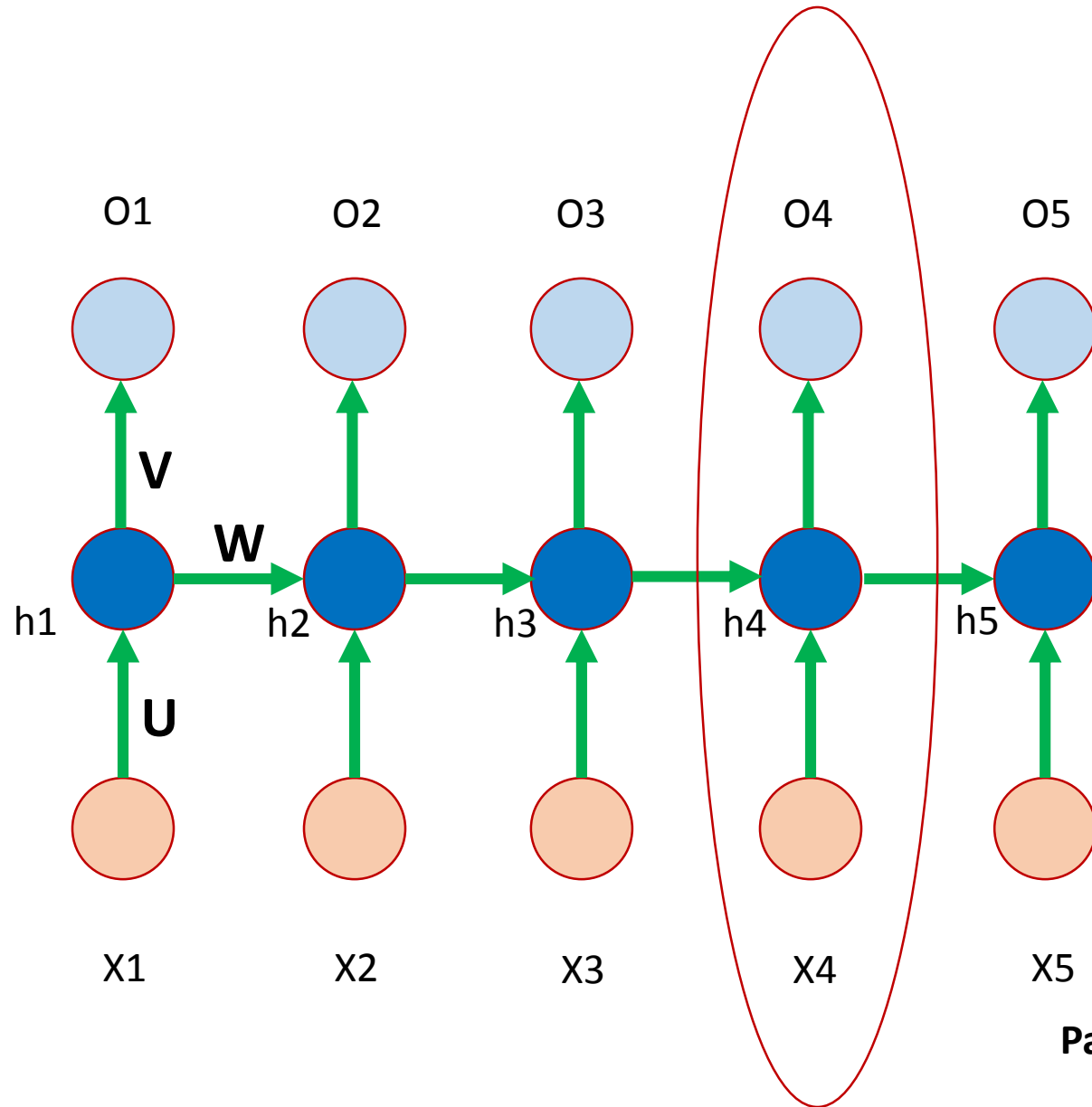


Recurrent Neural Networks (RNNs) dengan Keras

Alfan Farizki Wicaksono
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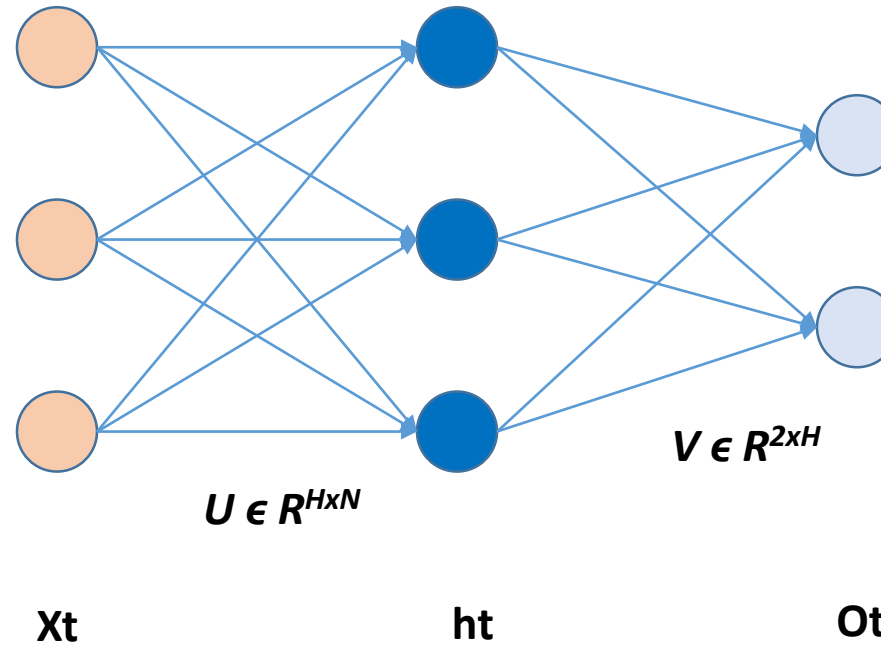
One of the famous Deep Learning Architectures in the NLP community

RNNs

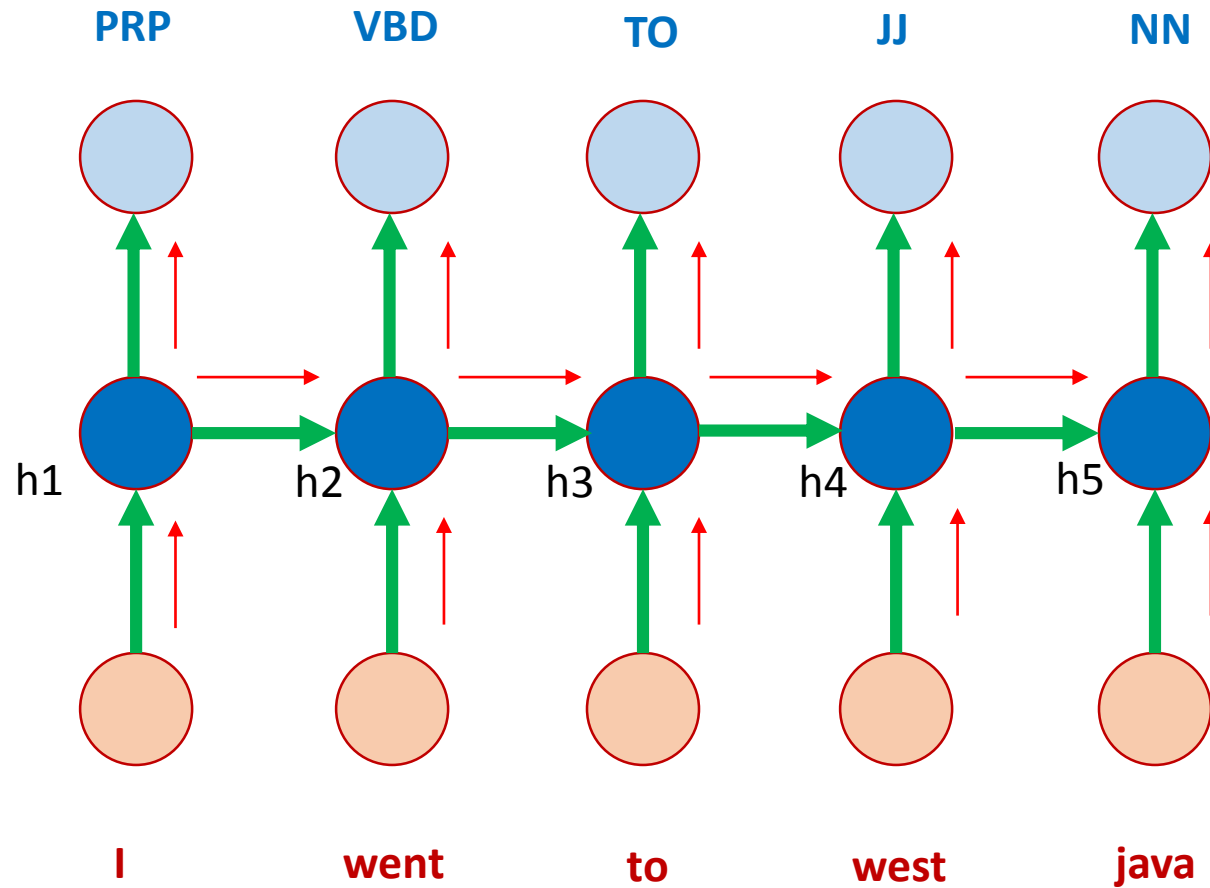


Parameters are shared along timesteps

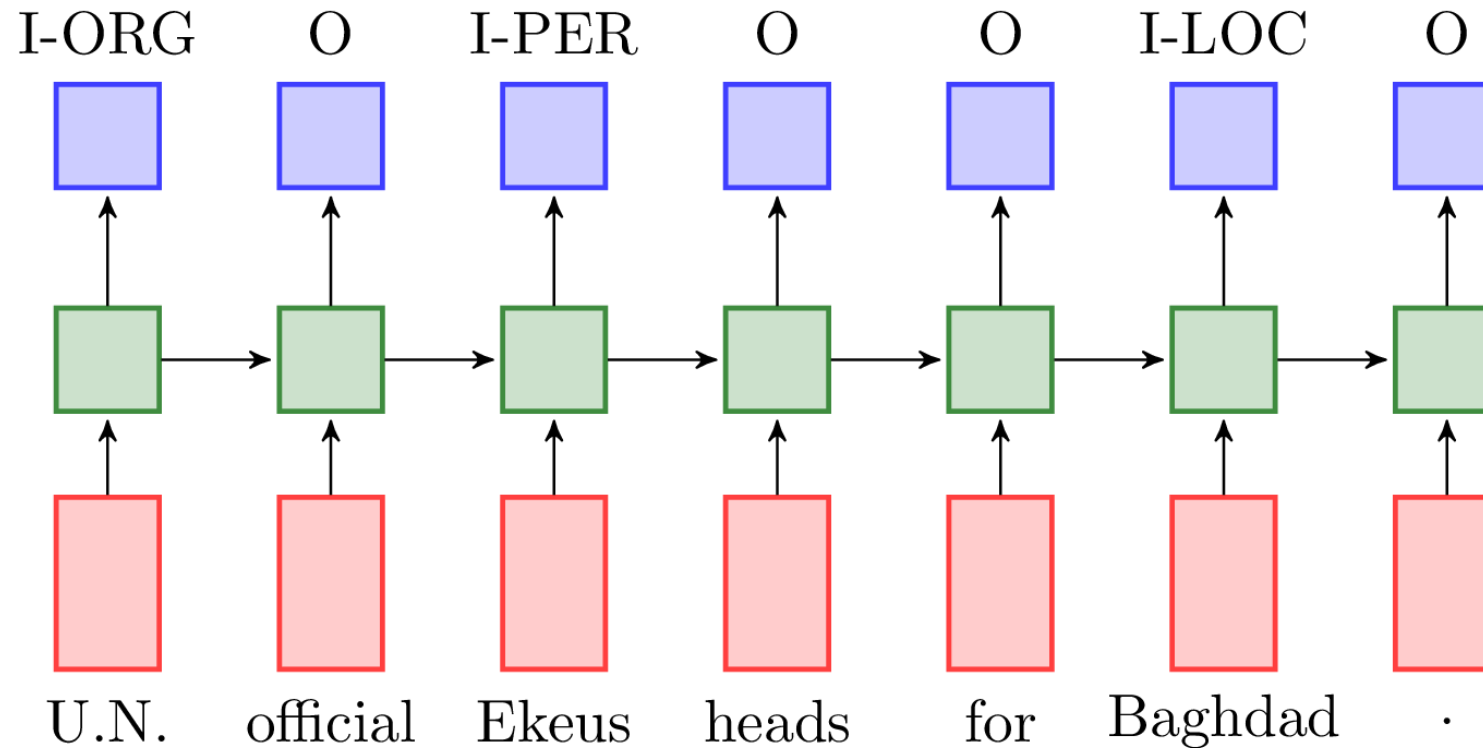
A time step



Example: RNNs for POS Tagger



Example: RNNs for Named-Entity Recognition

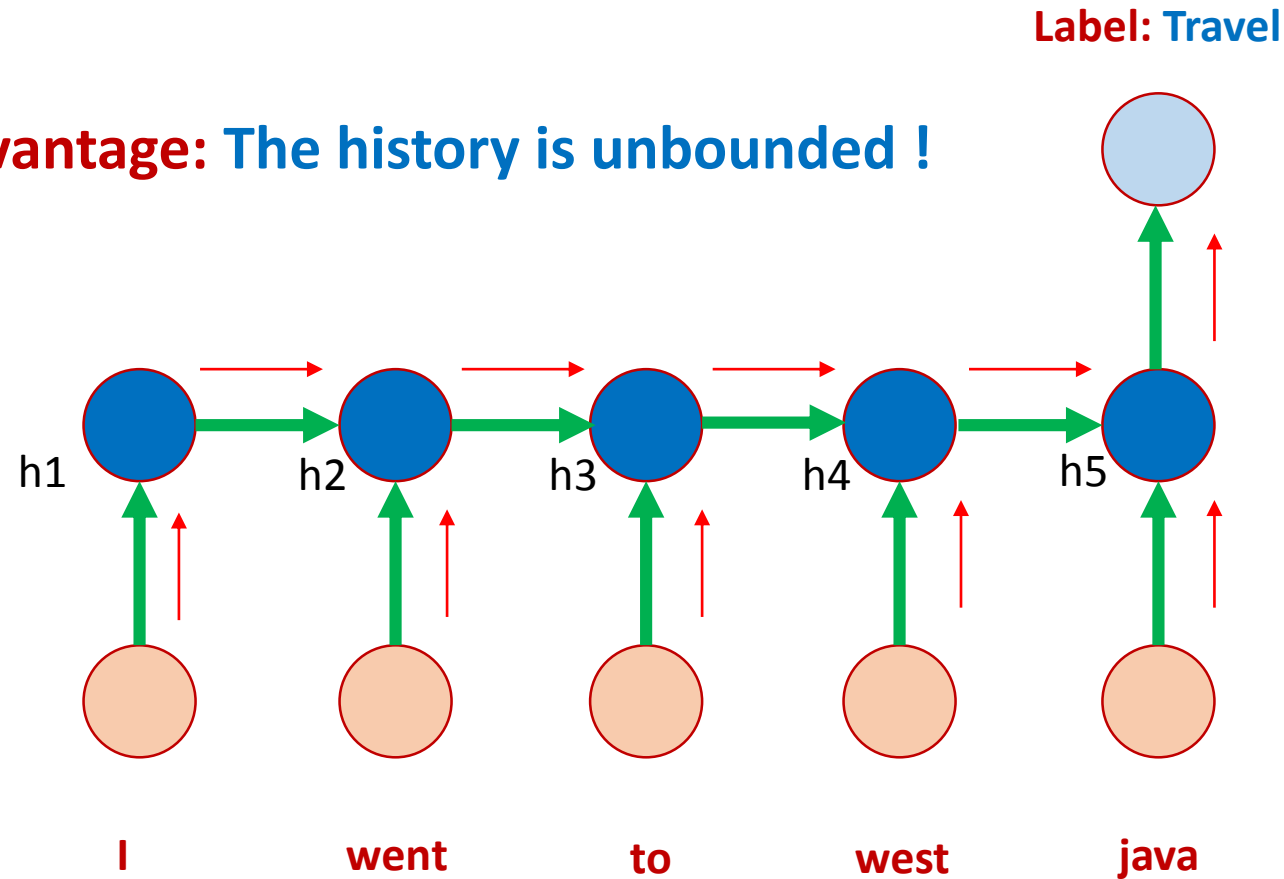


<http://dirko.github.io/Bidirectional-LSTMs-with-Keras/>

Text Classification : Single-Output RNNs

We only need one **single output** !

Advantage: The history is unbounded !



Varian dari RNNs

RNNs suffer from **vanishing gradient problem**.

- **LSTMs** (Long Short Term Memory)
- **GRUs** (Gated Recurrent Unit)

Please read the following nice blog post!

<http://colah.github.io/posts/2015-08-Understanding-LSTMs/>

Perhatikan Penjelasan dari 4 kode berikut

- `rnnsingle.py`
- `maskingrnn.py`
- `rnnembedding.py`
- `rnnsinglebatch.py`