What is Deep RNN →

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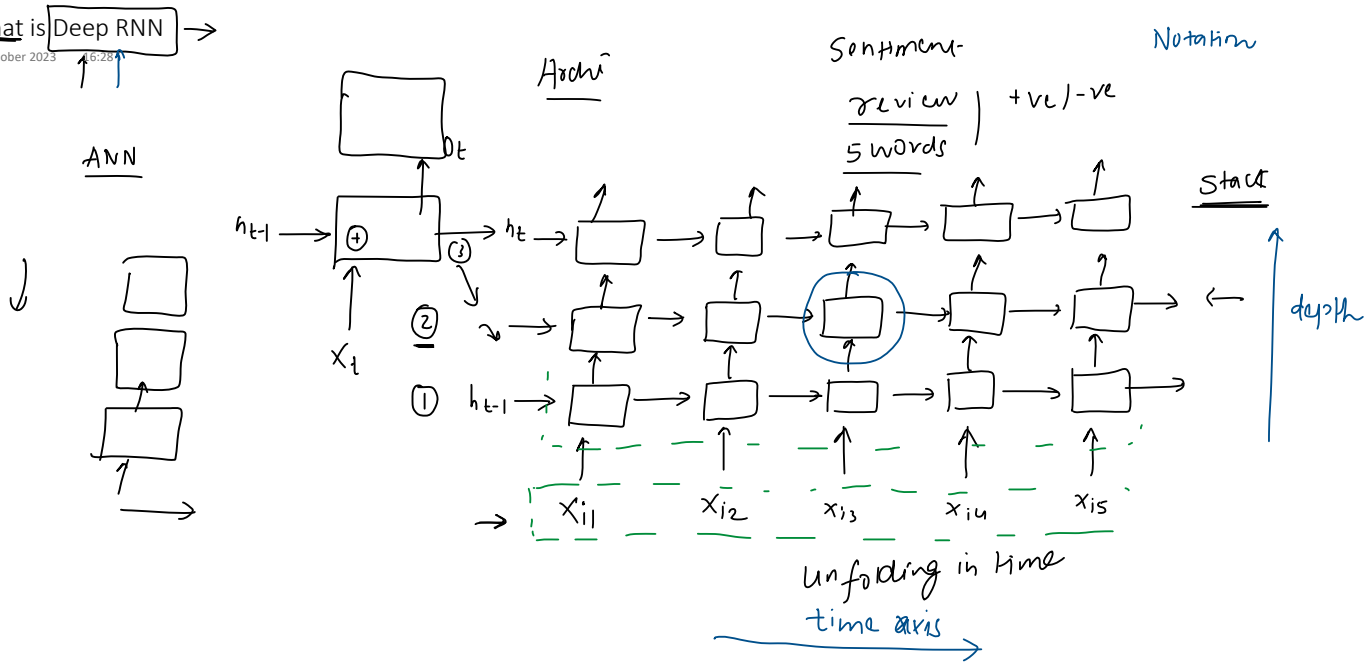

Architecture

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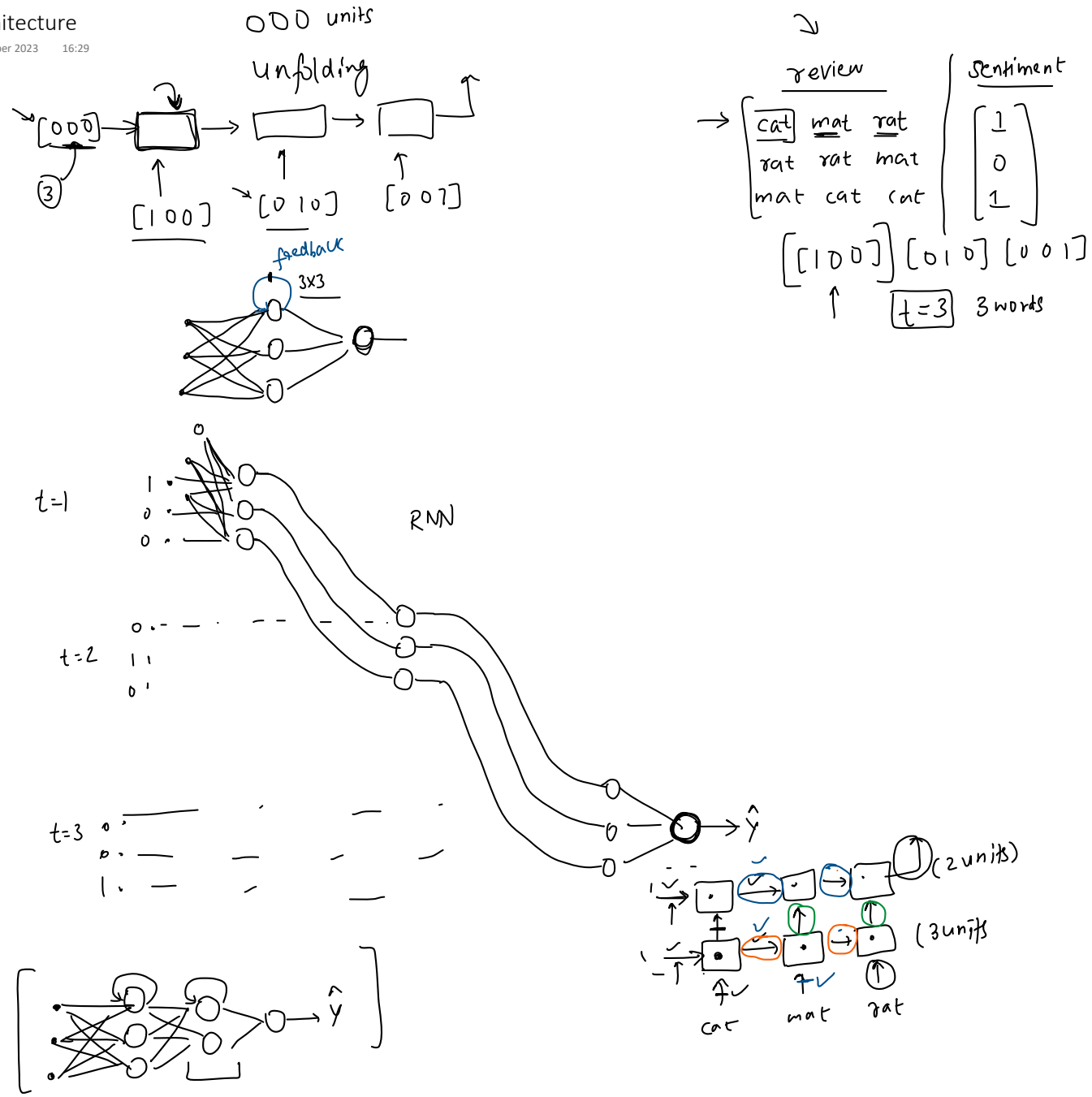


t=3
y

# Notation

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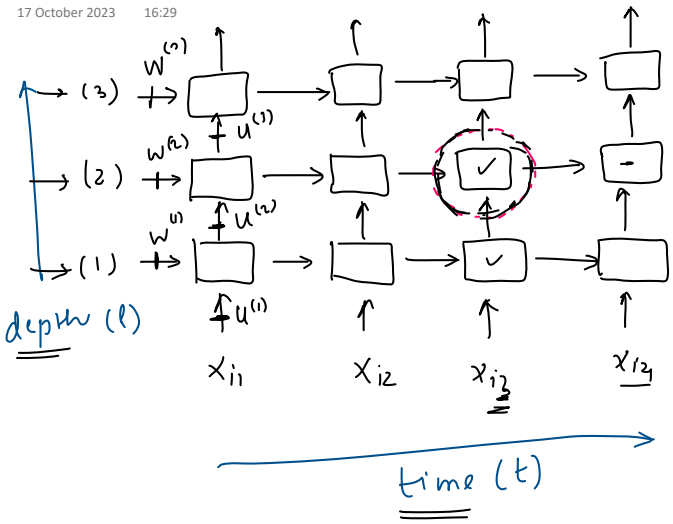


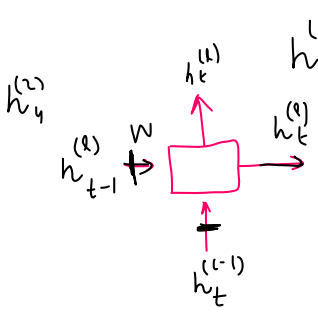

$$h_t^{(l)} = \tanh\left( W^{(l)} h_{t-1}^{(l)} + U^{(l)} h_t^{(l-1)} + b \right)$$

## Why and When to use?

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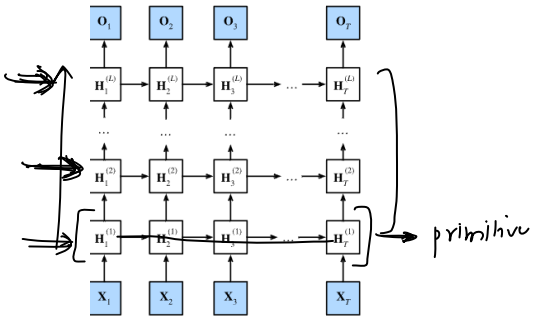
1. Hierarchical Representation ✓
2. Customization for Advanced Tasks

deep RNN — stack — product — sentence




encoder-decoder → machine → deep RNNs

love, hate, amazing, terrible

deep RNN

Audio is bad
Display is great
Overall I am happy

→ sentiment

When to use Deep RNNs?

- Complex tasks → Speech recog, Machine translation
- Large datasets → Overfitting
- Computational
- Simpler Models → Deep RNN

Use this when we want to increase the complexity of model , or for some complex tasks .

Code Example

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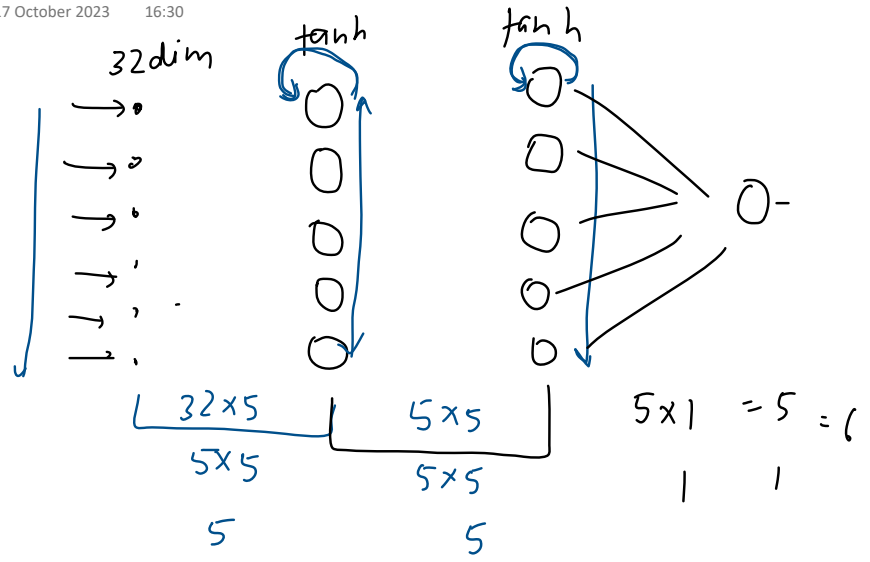



→ embedded

10000 x 32 = 3,20,000

simple RNN 1

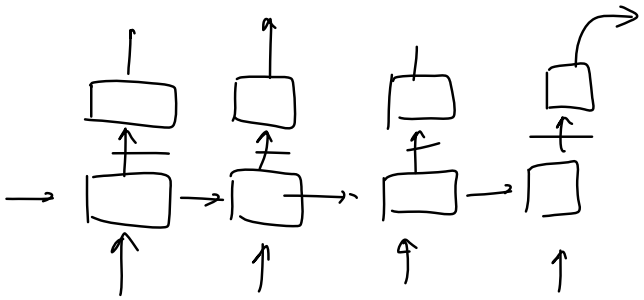
190

simple RNN 2

55

Dense

6



# Variants

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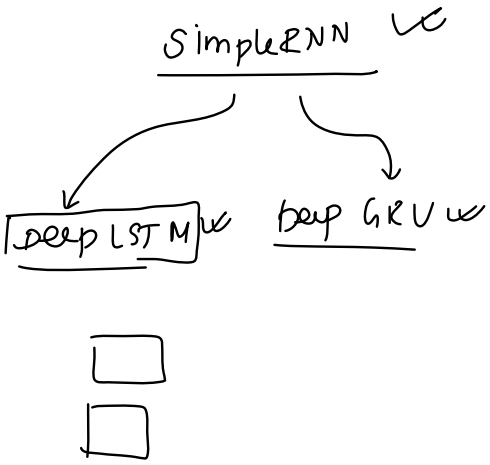


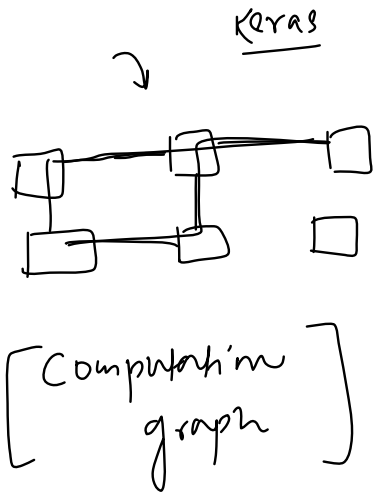

# Disadvantages

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