NLP and Word Embeddings

Sentiment classification

Sentiment classification problem

x $\longrightarrow$ y

The dessert is excellent. ★★★★☆

Service was quite slow. ★★☆☆☆

Good for a quick meal, but nothing special. ★★★☆☆

Completely lacking in good taste, good service, and good ambience. ★☆☆☆☆

10,000 → 100,000 words

Andrew Ng

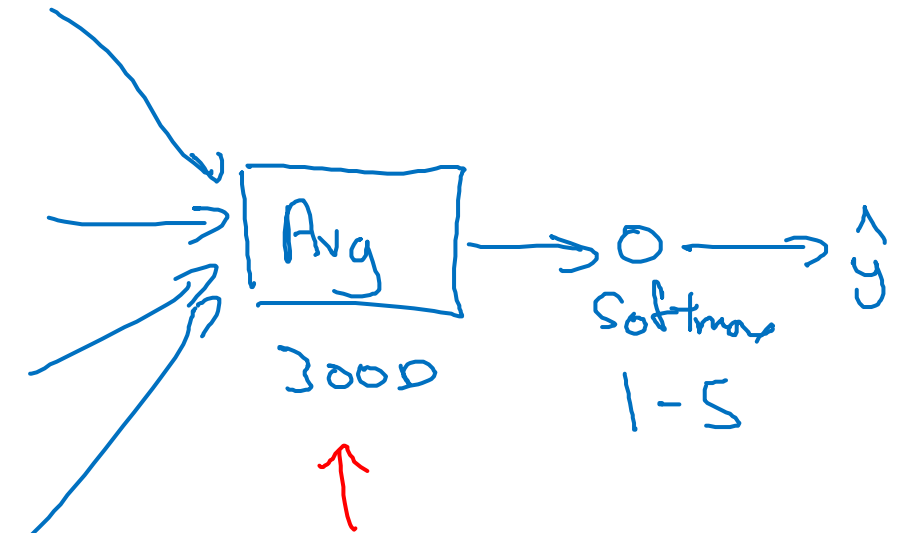# Simple sentiment classification model

The   dessert   is   excellent   ★★★★☆

8928   2468   4694   3180

The o_{8928} $\longrightarrow$ $\longrightarrow$ e_{8928}

desert o_{2468} $\longrightarrow$ E $\longrightarrow$ e_{2468}

is o_{4694} $\longrightarrow$ E $\longrightarrow$ e_{4694}

excellent o_{3180} $\longrightarrow$ E $\longrightarrow$ e_{3180}

Avg → 300D → O → ŷ Softmax 1-5

300D

"Completely lacking in good taste, good service, and good ambience."

100 B words

Andrew Ng

RNN for sentiment classification

$\hat{y}$

softmax

$a^{<0>} \rightarrow a^{<1>} \rightarrow a^{<2>} \rightarrow a^{<3>} \rightarrow a^{<4>} \rightarrow \ldots \rightarrow a^{<10>}$

e_{1852} e_{4966} e_{4427} e_{3882} e_{330}

E E E E E

Completely   lacking   —   in   good   ....

absent

of

many-to-one

"not good"