

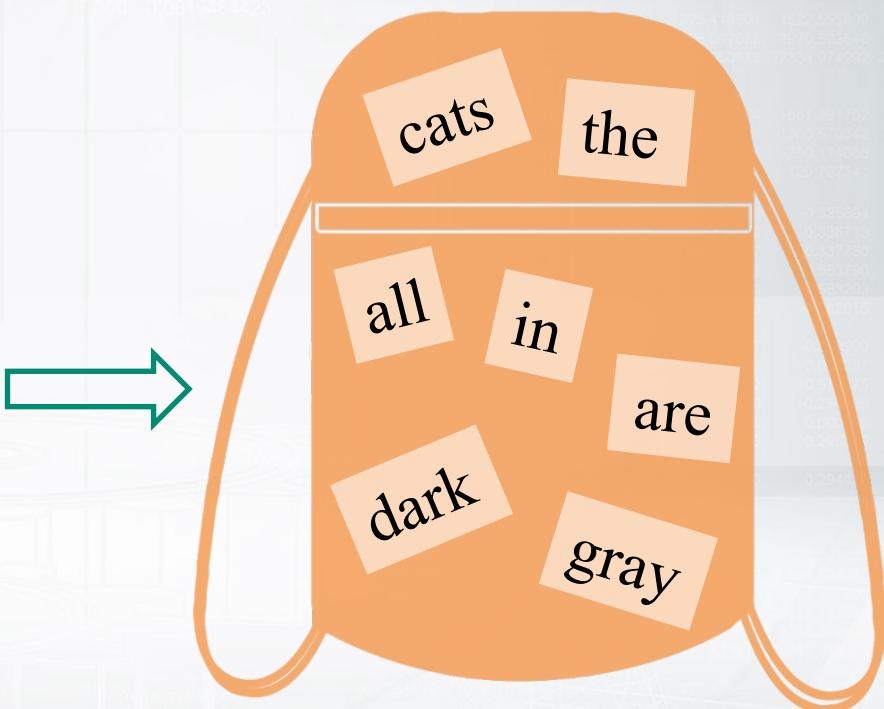
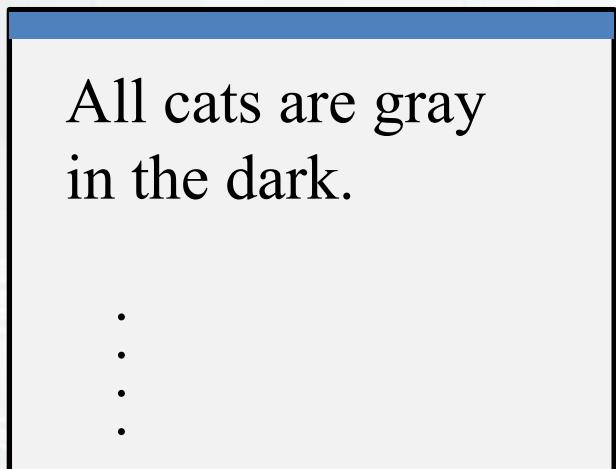


Brief overview of the next weeks

Week 1

Text classification tasks:

- predict some tags or categories
- predict sentiment for a review
- filter spam e-mails



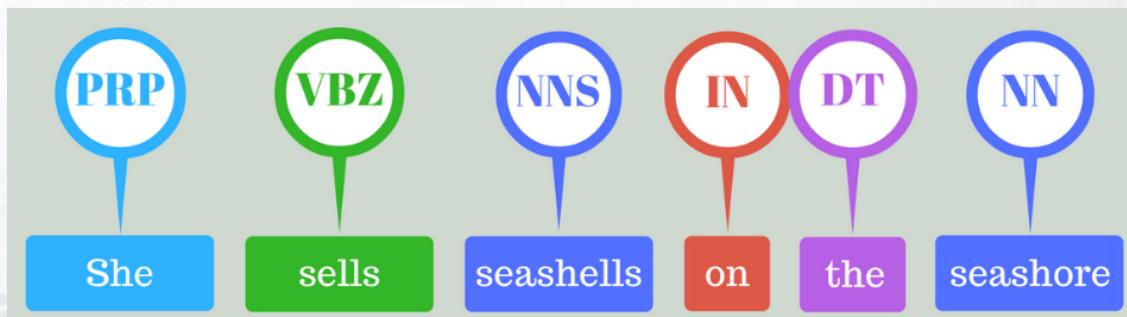
Week 2

How to predict word sequences?

Language models are needed in chat-bots, speech recognition, machine translation, summarization...

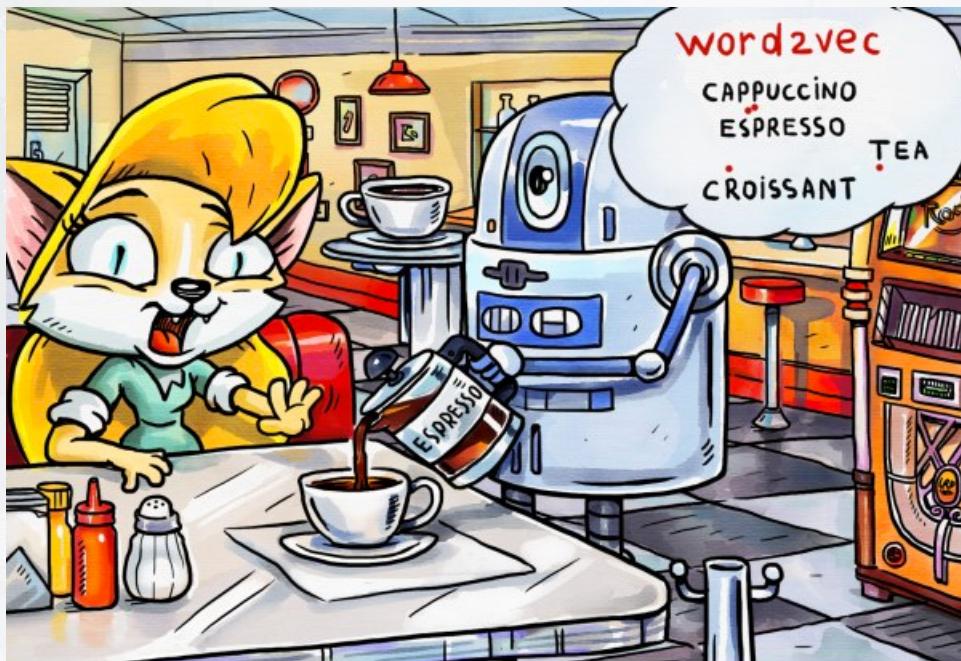
How to predict tags for the word sequences?

- Part-of-speech tags
- Named entities
- Semantic slots



How to represent a meaning of a word, a sentence, or a text?

You shall know the word by the company it keeps. (Firth, 1957)



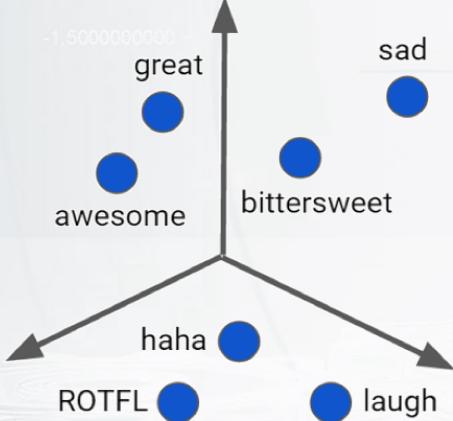
- Espresso? But I ordered a cappuccino!
- Don't worry, the cosine distance between them is so small
that they are almost the same thing.

- Word embeddings
- Sentence embeddings
- Topic models

Week 3

Where do we need that?

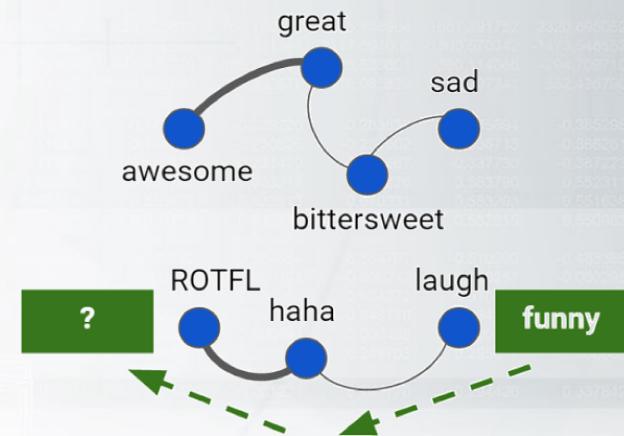
- Search, question answering, and any ranking
- Any label propagation on a word similarity graph



Word Embedding Vectors
(dense, continuous space)



Word Similarity Graph



Learning Emotion Labels

<https://research.googleblog.com/2016/10/graph-powered-machine-learning-at-google.html>

Week 4

Sequence to sequence tasks:

- machine translation
- summarization, simplification
- conversational chat-bot

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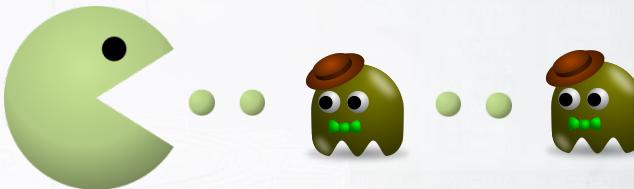
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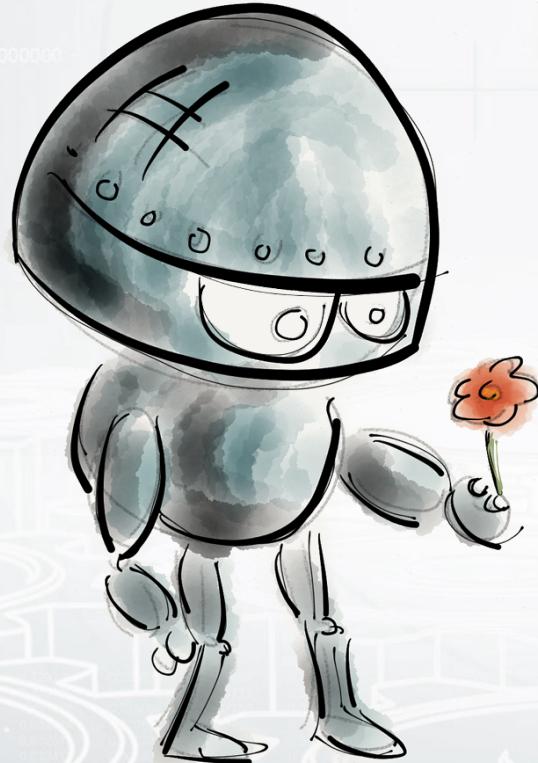
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Week 5

Dialogue agents become more and more popular:

- goal-oriented (e.g. help in a call-center)
- conversational (e.g. entertainment)



Project:

build a conversational chat-bot
that assists with StackOverflow
search!