Word Vectors - I

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Semantics

What is semantics?

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Why worry about semantics?

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Why worry about semantics?

How to capture semantics?

Let's start with the words ...

Word Representation

In general, words are treated as atomic symbols.

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One-hot representation

Distributional Similarity Based Representations

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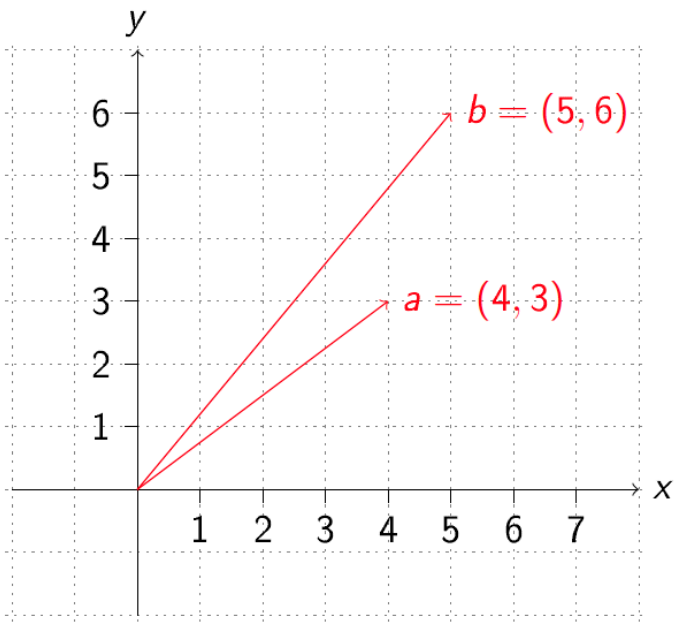
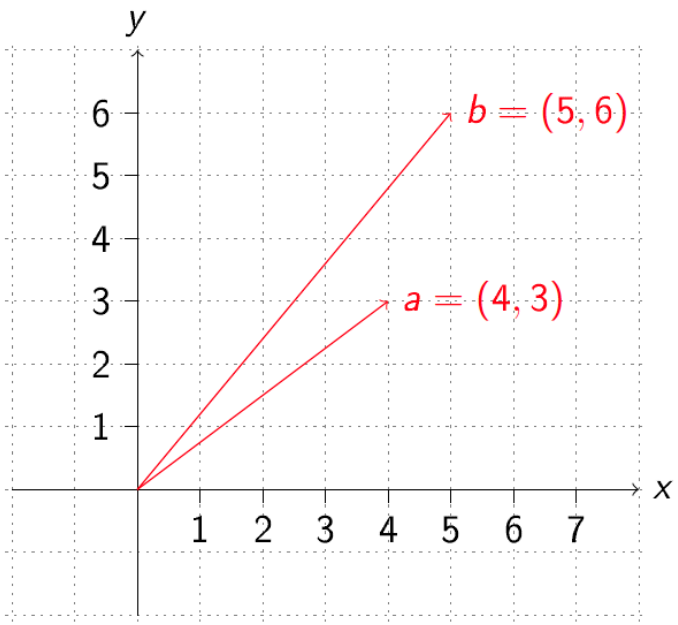
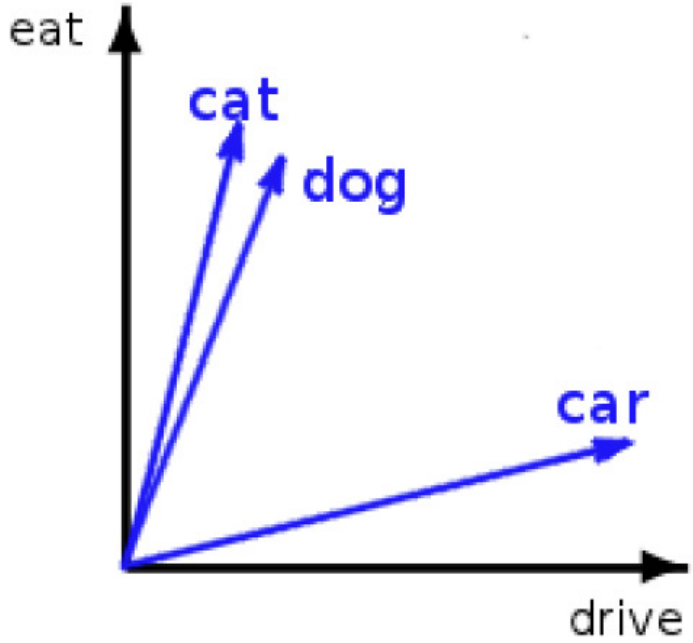
These words will represent banking

Vector Space Model



Vector Space Model





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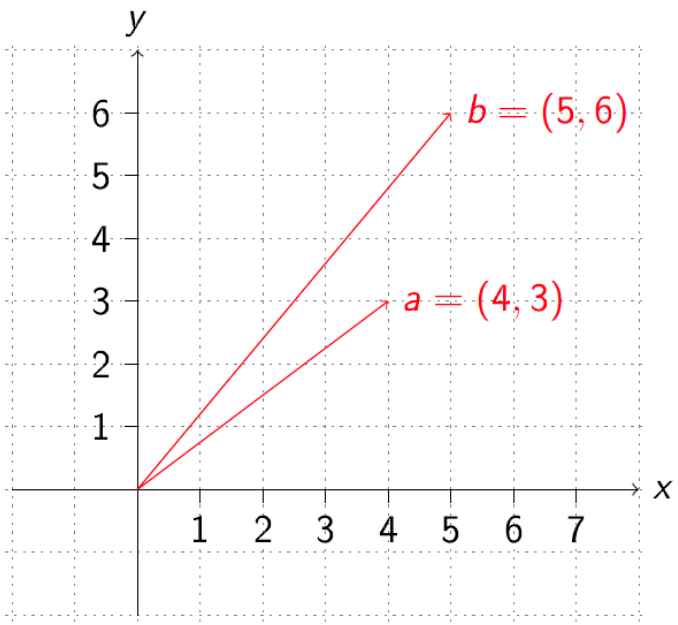

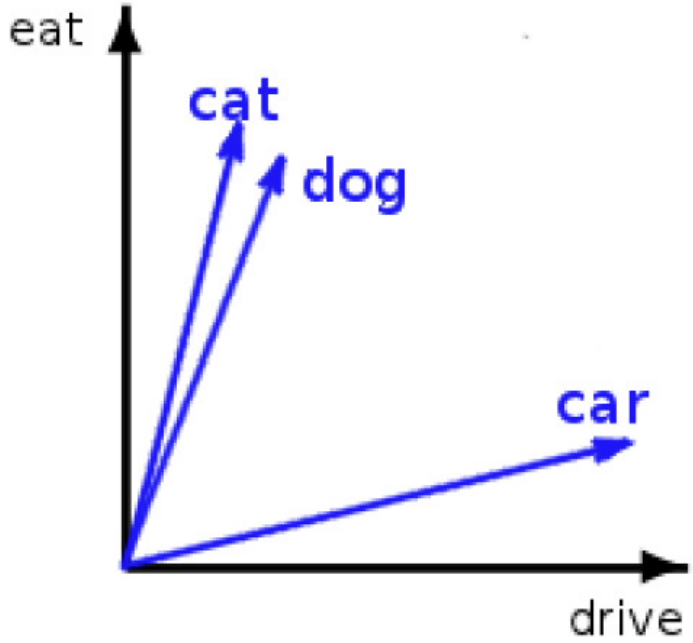

In practice, many more dimensions are used.

$cat =$ [...dog 0.8, eat 0.7, joke 0.01, mansion 0.2,...]

Building a DSM step-by-step

The "linguistic" steps

Pre-process a corpus (to define targets and contexts)

$\Downarrow$

Select the targets and the contexts

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The "linguistic" steps

Pre-process a corpus (to define targets and contexts)

⇓

Select the targets and the contexts

The "mathematical" steps

Count the target-context co-occurrences

⇓

Weight the contexts (optional)

⇓

Build the distributional matrix

⇓

Reduce the matrix dimensions (optional)

⇓

Compute the vector distances on the (reduced) matrix