

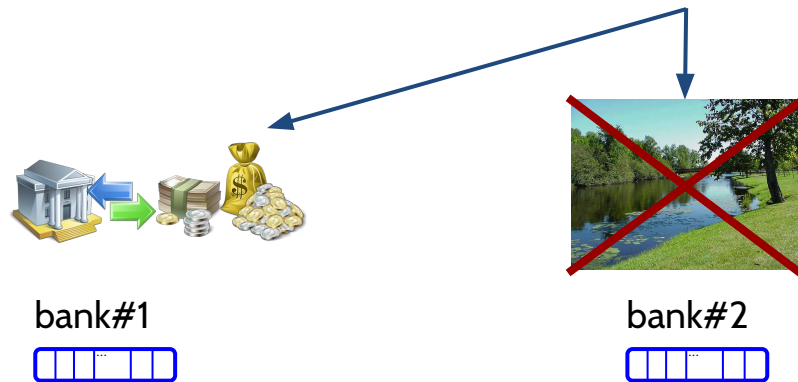
Embedding Words and Senses Together via Joint Knowledge-Enhanced Training

Presented in CoNLL 2017

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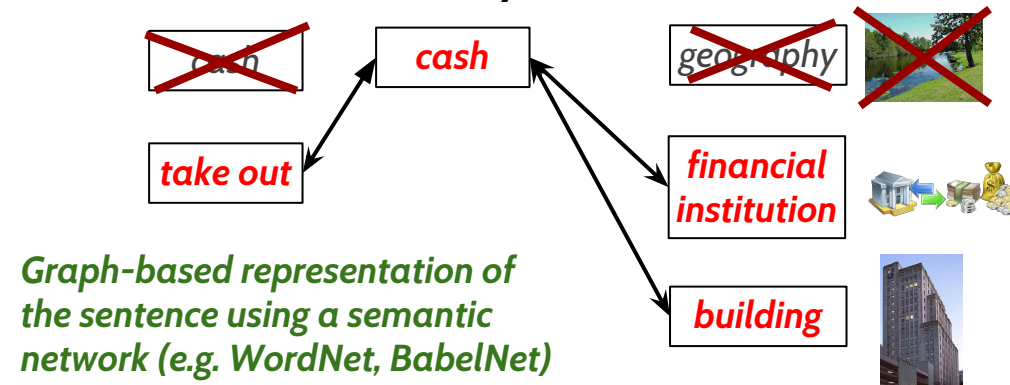
Motivation

He withdrew money from the bank.



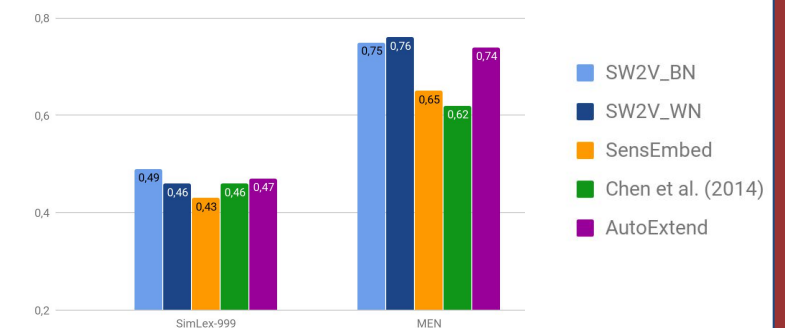
Linking words and senses in context

He withdrew money from the bank.

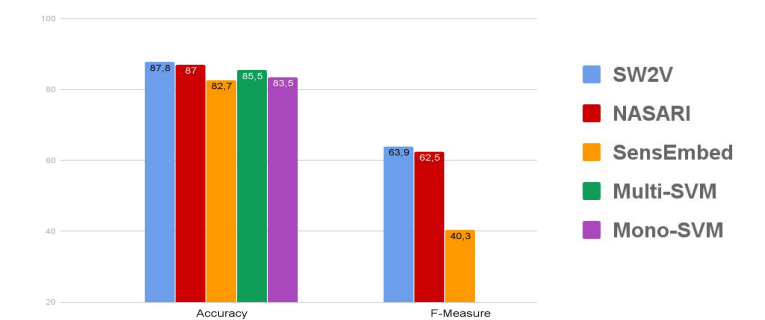


Evaluation

Word similarity



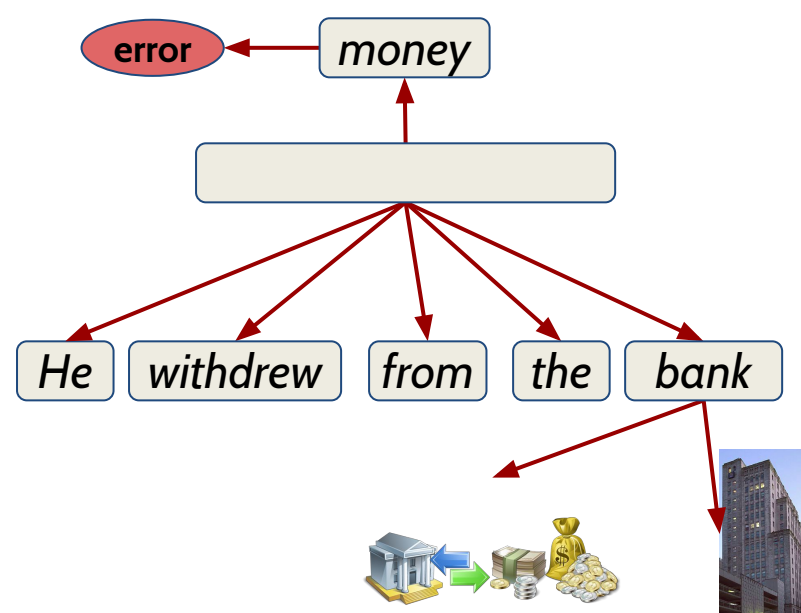
Sense clustering



Methodology

Given as input a corpus and a semantic network:

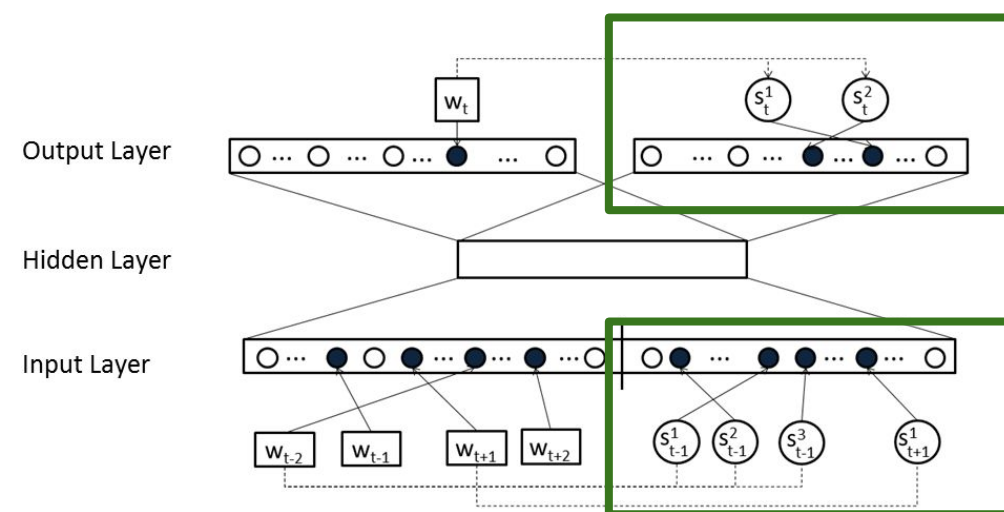
1. Use a semantic network to link to each word its associated senses in context.
2. Use a neural network where the update of word and sense embeddings is linked, exploiting virtual connections.



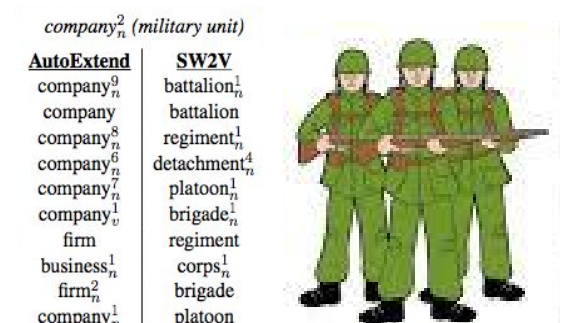
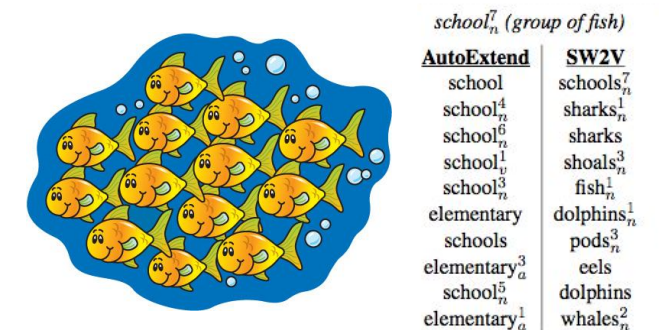
The Model

Full architecture of SW2V (this work)

$$E = -\log(p(w_t | W^t, S^t)) - \sum_{s \in S^t} \log(p(s | W^t, S^t))$$



Word and sense interconnectivity



<http://lcl.uniroma1.it/sw2v>