



Candidates Ranking

She was a **bright** student.

candidates

vivid
shining
brilliant
intelligent
luminous

★★★★ brilliant
★★★ smart
★★ intelligent

Datasets

LST [McCarthy et al., 2007]
2k sentences
201 targets

CoInCo [Biemann, 2012]
2.5K sentences
3.8K targets

TWSI [Kremer, 2014]
25K sentences
1012 target nouns

Manual
annotation

Small size
and few
targets

Unsupervised
approaches

Ablation Study

Clustering

- **Fixed**: based on WordNet senses for the target

Adaptive: k-means run several times;
pick k with the best *silhouette*

Sentence Embeddings

- **LASER** [Artetxe and Schwenk, 2019]
S-BERT [Reimers and Gurevych, 2019]

Substitutes Ranking

Contextualised Similarity
BERT Embeddings

- **Combined** Similarity
BERT + Numberbatch embeddings

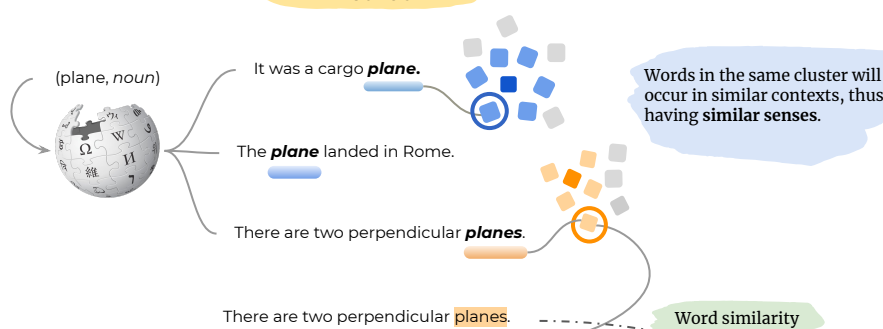
Dataset Construction

Top 1 substitute, similarity > 0.4



Extremely **simple** model can
achieve **SotA results** when
using ALaScA!

Method



There are two perpendicular **planes**.

Word similarity

Sentence similarity

- 0.75 The symmetric **tensors** of degree form a **vector** subspace (or module).
- 0.73 In **mathematics**, a **tensor** is an algebraic object that describes a relationship between sets of algebraic objects related to a **vector** space.
- 0.70 These hyperplanes divide **space** into eight **trihedra**, called **octants**.

tensors	0.65
degree	0.45
vector	0.51
subspace	0.48
module	0.48
matemathics	0.38
tensor	0.63
...	...
octants	0.41

Lemma substitutes

tensor	0.64
vector	0.51
subspace	0.51
module	0.48
degree	0.48
octants	0.41
...	...
matemathics	0.38

(plane, noun) There are two perpendicular planes. → tensor, vector, subspace

(plane, noun) It was a cargo plane. → airplane, aircraft

Dataset sample

ALaScA

3.4k target words
34.7k sentences

Completely **automatic**
Can be **adapted** to the desired
size and **words**!

Download ALaScA at
<https://sapienzanlp.github.io/alasca/>

Icons from www.flaticos.com
Graphic elements from www.slidesgo.com

